

Research Division

Contractor: Environment Business International, Inc.

Contract # 07-315

FUNDING FISCAL YEAR	FY 07/08	FY 08/09	FY 09/10	
TERM	05/01/08-04/30/10	05/01/08-04/30/10	05/01/08-04/30/10	
PCA	72350	72350	72350	
LINE ITEM/OBJECT	418.20	418.20	418.20	TOTAL
DESCRIPTION	Provide study for part of AB 32			
Contract \$	\$ 137,348.00	\$ 39,242.00	19,621.00	\$ 196,211.00
			\$	-
			\$	-

Total, Contract	\$ 137,348.00	\$ 39,242.00	\$ 19,621.00	\$ 196,211.00
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Payments to Contractor:

Inv. #	Inv. Date	Ser Per		C/S
EBG-48	6/30/2008		12,786.30	12,786.30 C080454 ✓
EBG-49	12/15/2008		4,437.90	4,437.90 C080454 ✓
EBG-50	2/25/2009		21,931.20	21,931.20 C080589 ✓
EBG-51	4/20/2009	01/09-03/09	26,073.00	26,073.00 C090009 ✓
EBG-52	7/20/2009	04/09 - 06/09	20,706.30	20,706.30 C090179 ✓

Total, Payments	\$ 85,934.70	\$ -	\$ -	\$ 85,934.70
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Balance Available to Pay Contractor	\$ 51,413.30	\$ 39,242.00	\$ 19,621.00	\$ 110,276.30
--------------------------------------------	---------------------	---------------------	---------------------	----------------------

Balance Must Be Spent By: 6/30/2010 6/30/2011 6/30/2012

Notes:

Contract Manager: Reza Mahdavi

8

RCVD DEC 15 09

0080454

Attachment 1 - Invoice EBG-48

Environmental Business International Inc.
4452 Park Boulevard, Suite 306, San Diego, CA 92116 USA
Phone: (619) 295-7685 | Fax: (619) 295-5743 | www.ebiusa.com

ARB Contract No: 07-315

Billing Period: 5/01/08-6/31/08

Billing Date: June 30, 2008

	Rates Base	Hours Base	Cost Base
DIRECT COSTS			
1a.		203	\$8,906
		42	\$3,360
	\$80.00		
		76	\$3,402
	\$45.00		
		65	\$1,821
	\$28.00		
		20	\$323
	\$16.00		
1b.	10.0%		\$891
1.			\$9,796
1.			
2.	3.0%		\$0
4.			
		Air Fare	\$669
		Parking	\$0
		Lunch	\$24
		TaxiCab	\$72
		Total	\$765
6.			\$0
7.			\$0
8.			\$0
			\$10,561
INDIRECT COSTS			
11.	25.0%		\$2,449
12.	5.0%		\$651
14.	4.0%		\$546
			\$3,646
TOTAL			\$14,207

WSS 10% Withheld 1,420.70

NOTES

WSS is computed on Direct Labor + Fringe.

Total Labor and on Other Direct Costs and Travel.

All costs after adding G&A.

Total Due \$12,786.30

PAYMENT APPROVED:

Bart E. Croes
BART E. CROES, P.E.

CHIEF, RESEARCH DIVISION

DATE 1/6/09

002

12,786.30

4,437.90

17,224.20

RCVD JAN 13 2009

CO 80589

RCVD MAR 2 '09

Attachment 2 - Invoice EBG-50

Environmental Business International Inc.

4452 Park Boulevard, Suite 306, San Diego, CA 92116 USA

Phone: (619) 295-7685 | Fax: (619) 295-5743 | www.ebiusa.com

ARB Contract No: 07-315
2.1.2008

Billing Period: ~~October, December 2008~~

Billing Date: February 25, 2009

	Rates Base	Hours Base	Cost Base
DIRECT COSTS			
1a. TOTAL DIRECT LABOR		386	\$16,229
Grant Ferrier (Senior Expert)	\$80.00	57	\$4,570
Katja Rauhala (Research Manager)	\$45.00	168	\$7,560
George Stubbs, Jim Hight, Fiona O'Don	\$28.00	127	\$3,562
Moe Wittenborn (Clerical)	\$16.00	34	\$538
1b. FRINGE	10.0%		\$1,623
1. TOTAL DIRECT LABOR & FRINGE			\$17,852
2. SUBCONTRACTORS	3.0%		\$0
4. TRAVEL		Air Fare	\$0
		Parking	\$0
		Lunch	\$0
		TaxiCab	\$0
		Total	\$0
6. PHOTOCOPYING & PRINTING			\$0
7. MAIL, TELEPHONE, & FAX			\$0
8. MATERIALS & SUPPLIES			\$0
TOTAL DIRECT COST			\$17,852
INDIRECT COSTS			
11. LABOR OVERHEAD	25.0%		\$4,463
12. G&A EXPENSE	5.0%		\$1,116
14. FIXED FEE	4.0%		\$937
TOTAL INDIRECT COST			\$6,516
TOTAL			\$24,368

LESS 10% withhold 2,436.80

~~Total Due \$ 21,931.20~~

NOTES

Labor overhead is computed on Direct Labor + Fringe.

G&A is computed on Total Labor and on Other Direct Costs and Travel.

Fee is computed on all costs after adding G&A.

Please pay from this invoice.

PAYMENT APPROVED:

[Signature]

BART E. CROES, P.E.
CHIEF, RESEARCH DIVISION

DATE _____

RCVD MAR 16 2009

C090009

RCVD JUN 15 09

Attachment 2 - Invoice EBG-51

Environmental Business International Inc.
4452 Park Boulevard, Suite 306, San Diego, CA 92116 USA
Phone: (619) 295-7685 | Fax: (619) 295-5743 | www.ebiusa.com

ARB Contract No: 07-315
Billing Period: January - March 2009
Billing Date: April 20, 2009

	Rates Base	Hours Base	Cost Base
DIRECT COSTS			
1a.		456	\$19,294
		70	\$5,600
		198	\$8,910
		148	\$4,144
		40	\$640
1b.	10.0%		\$1,929
1.			\$21,223
2.	3.0%		\$0
4.			
		Air Fare	\$0
		Parking	\$0
		Lunch	\$0
		TaxiCab	\$0
		Total	\$0
6.			\$0
7.			\$0
8.			\$0
			\$21,223
INDIRECT COSTS			
11.	25.0%		\$5,306
12.	5.0%		\$1,326
14.	4.0%		\$1,114
			\$7,747
TOTAL			\$28,970

NOTES

Labor overhead is computed on Direct Labor + Fringe.
G&A is computed on Total Labor and on Other Direct Costs and Travel.
Fee is computed on all costs after adding G&A.

LESS 10% 2,897
Total \$ 26,073

Please pay from this invoice.

PAYMENT APPROVED:

[Signature]
BART E. CROES, P.E.
CHIEF, RESEARCH DIVISION
DATE 6/29/09

RCVD JUN 15 09

Attachment 2 - Invoice EBG-52

Environmental Business International Inc.

4452 Park Boulevard, Suite 306, San Diego, CA 92116 USA
 Phone: (619) 295-7685 | Fax: (619) 295-5743 | www.ebiusa.com

ARB Contract No: 07-315

Billing Period: April - June 2009

Billing Date: July 20, 2009

	Rates Base	Hours Base	Cost Base
DIRECT COSTS			
1a.			
TOTAL DIRECT LABOR		365	\$15,323
Grant Ferrier (Senior Expert)	\$80.00	55	\$4,400
Katja Rauhala (Research Manager)	\$45.00	151	\$6,795
George Stubbs, Jim Hight, Fiona O'Don	\$28.00	132	\$3,696
Moe Wittenborn (Clerical)	\$16.00	27	\$432
1b.	10.0%		\$1,532
1.			\$16,855
2.	3.0%		\$0
4.			
TRAVEL		Air Fare	\$0
		Parking	\$0
		Lunch	\$0
		TaxiCab	\$0
		Total	\$0
6.			\$0
7.			\$0
8.			\$0
			\$16,855
INDIRECT COSTS			
11.	25.0%		\$4,214
12.	5.0%		\$1,053
14.	4.0%		\$885
			\$6,152
TOTAL			\$23,007

less 10% withhold 2,300.70

NOTES

Labor overhead is computed on Direct Labor + Fringe.

G&A is computed on Total Labor and on Other Direct Costs and Travel.

Fee is computed on all costs after adding G&A.

Total Due \$20,706.30

Please pay from this invoice.

PAID SEP 16 2009

PAYMENT APPROVED:

[Signature]

BART E. CROES, P.E.
CHIEF, RESEARCH DIVISION

DATE 9/1/09

Details of Direct Labor Cost

ARB Contract No: 07-315

	Hours
Grant Ferrier (Senior Expert)	
Project management (comm. with contract mgr, etc)	5
Preparation of Industry Definition	25
Database structuring for segment and company research	25
Total Hours	55
Katja Rauhala (Project Manager)	Hours
Project management (comm. with contract mgr other project members, etc)	1
Literature compilation/definition support	6
Company research for surveys and directory listings	144
Total Hours	151

Progress Report Narrative

The statements and conclusions in this report are those of Contractor and not necessarily those of the California Air Resources Board. The mention of commercial products, their source, or their use in connection with material reported herein is not to be construed as actual or implied endorsement of such products.

Please see progress report for April - June 2009 (2nd Quarter)

Cost Tracking

With a total billed on the project of \$95,421
and a budget total of \$ 196,211.00
EBI has consumed 49%
of the project budget

Invoices in 2008-2009:

2nd quarter 08	\$14,207
3rd quarter 08	\$4,931
4th quarter 08	\$24,306
1st quarter 09	\$28,970
2nd quarter 09	\$23,007
Total	\$95,421

Environmental Business International, Inc.
4452 Park Boulevard, Suite 306, San Diego, CA 92116 USA
Phone: (619) 295-7685 | Fax: (619) 295-5743 | www.ebiusa.com

AGREEMENT NUMBER 07-315
REGISTRATION NUMBER 39000808331170

1. This Agreement is entered into between the State Agency and the Contractor named below:

STATE AGENCY'S NAME

Air Resources Board (ARB)

CONTRACTOR'S NAME

Environmental Business International, Inc. (EBI or Contractor)

2. The term of this Agreement is: **May 01, 2008** through **April 30, 2010**
 (or upon DGS approval through two years)

3. The maximum amount of this Agreement is: **\$196,211.00**
 One Hundred Ninety-Six Thousand Two Hundred Eleven Dollars

4. The parties agree to comply with the terms and conditions of the following exhibits which are by this reference made a part of the Agreement.

Exhibit A – Scope of Work	4 pages
Exhibit A, Attachment 1 – Technical Proposal	37 pages
Exhibit B – Budget Detail and Payment Provisions	1 page
Exhibit B, Attachment 1 – Cost Proposal	11 pages
Exhibit C* – General Terms and Conditions (GTC-307) *(will be included in the contract, by reference to Internet site www.ols.dgs.ca.gov)	
Exhibit - D Special Terms and Conditions (Attached hereto as part of this Agreement)	2 pages
Exhibit E – Additional Provisions	10 pages
Exhibit F – Final Report Format	5 pages

Items shown with an Asterisk (*), are hereby incorporated by reference and made part of this agreement as if attached hereto.
 These documents can be viewed at www.ols.dgs.ca.gov/Standard+Language

IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto.

CONTRACTOR

CONTRACTOR'S NAME (if other than an individual, state whether a corporation, partnership, etc.)

Environmental Business International, Inc.

BY (Authorized Signature)

[Handwritten Signature]

DATE SIGNED (Do not type)

4/11/08

PRINTED NAME AND TITLE OF PERSON SIGNING

Grant Ferrier, President

ADDRESS

4452 Park Blvd., # 306
 San Diego, California 92116

STATE OF CALIFORNIA

AGENCY NAME

Air Resources Board

BY (Authorized Signature)

[Handwritten Signature]

DATE SIGNED (Do not type)

04.24.08

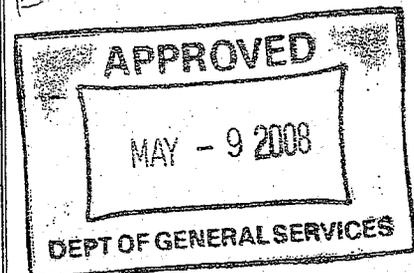
PRINTED NAME AND TITLE OF PERSON SIGNING

Socorro Watkins, Chief, Business Management Branch

ADDRESS

P.O. Box 2815 Sacramento, CA 95812

California Department of General Services Use Only



[Handwritten Signature]

Exempt per:

EXHIBIT A
Standard Agreement

SCOPE OF WORK

1. Contractor agrees to provide to Air Resources Board (ARB) services to conduct a study entitled, "The Climate Change Industry in California: The Current Market and Prospect for Growth in the Global Economy," which is attached hereto as Attachment 1 and made part of this Agreement.
2. The services shall be performed at Environmental Business International, Inc., in San Diego, California, and as specified in Exhibit A, Attachment 1, of this Agreement.
3. The services shall be provided during the time period of May 01, 2008 through April 30, 2010, the term of this Agreement.
4. The project representatives during the term of this agreement will be:

State Agency: Air Resources Board	Contractor: Environmental Business International, Inc.
Section/Unit: Research Division	
Attention: Reza Mahdavi	Attention: Grant Ferrier
Address: 1001 I Street, 5 th Floor Sacramento, CA 95814	Address: 4452 Park Boulevard, Ste. 306 San Diego, CA 92116
Phone: (916) 323-8704	Phone: (619) 295-7685
Fax: N/A	Fax: (619) 295-5743
Email: rmahdavi@arb.ca.gov	Email: www.ebiusa.com

Direct all administrative inquiries to:

State Agency: Air Resources Board	Contractor: Environmental Business International, Inc.
Section/Unit: Research Division	
Attention: Emma Plasencia	Attention: Jeff Turner
Address: 1001 I Street, 5 th Floor Sacramento, CA 95814	Address: 4452 Park Boulevard, Ste. 306 San Diego, CA 92116
Phone: (916) 323-1524	Phone: (619) 295-7685
Fax: (916) 322-4357	Fax: (619) 295-5743
Email: eplasenc@arb.ca.gov	Email: www.ebiusa.com

EXHIBIT A Standard Agreement

5. Description of Services:

The objective of this study is to define the climate change industry and characterize its current status and assess its relative importance to the California economy today and in the future. The contractor should also identify market drivers that can help in further development and growth of the industry in California. The information obtained from this study will assist the ARB and other state agencies that are in charge of implementing climate change initiatives in assessing the positive impacts of their regulatory actions.

The contractor will review the current literature and other sources of information and utilize focus group of experts to develop a definition and a segmentation of the climate change industry and to identify the main market drivers for each market segment. All businesses in the industry are identified and classified by the market segment under which they operate. The data will be collected or disaggregated from the aggregate data to quantify each market segment. The data collected will be used to project the potential growth of the industry and its impact on the California economy.

6. Background:

Growing public awareness of a changing climate has induced California policy makers into action. In the absence of a coordinated national climate change policy, California has taken the lead in developing climate change policies that are increasingly emulated by other states. Following the successful adoption of the California state motor vehicles pollution control standards (AB 1493) in 2004, California embarked on establishing the most comprehensive program of regulatory and market mechanisms in the world to achieve real, quantifiable, cost-effective reductions of greenhouse gases (GHG).

The California Global Warming Solutions Act of 2006 (AB 32) requires ARB to monitor and reduce greenhouse gas emissions in consideration of a number of factors including impacts on California's economy. While new climate change regulations may impose costs on some businesses, they are also likely to bring about a significant opportunity for benefits for those businesses and other businesses in California. This study is intended to evaluate these benefits and identify market drivers that can enhance the prospects for these positive results.

Aware of changing public attitudes, a growing number of businesses are adopting green policies in their business practices. These changes have already begun to stimulate investment in the emerging climate change industry. Businesses currently benefiting from this trend can be classified into three categories: a clean product industry that produces less-emitting products, vehicles and fuels; a clean energy systems and power industry making less-emitting energy sources; and supporting industry providing consulting and engineering services and emissions trading.

EXHIBIT A Standard Agreement

The current and future regulations are expected to further stimulate demand in this emerging industry. The expansion of the industry will likely bring about an increase in the number of businesses, jobs, sales revenue, profits, and exports. This study intends to assess these positive economic impacts, as well as other social indicators such as improved efficiency of consumer products, reduced emissions and waste and improved energy security.

This study will be enormously beneficial to ARB and other state agencies in charge of implementing the California Global Warming Solutions Act of 2006. This study will provide a uniform set of definitions and market segmentations for the climate change industry that could be used to measure the effectiveness of various public policies in terms of market drivers, technology development, and regulations. This study also provides the Board and other state agencies with reliable data on the positive impacts of their climate change regulations that could be used along with the costs of their actions in evaluating the extent to which the climate change regulations may affect California business competitiveness.

7. Technical Plan:

To accomplish this study, the contractor will complete the following tasks:

Task 1: Literature Review and Focus Group

Conduct an intensive review of the literature, current climate change regulations and initiatives and meetings with industry experts to develop a comprehensive definition and segmentation of the climate change industry. The definition of the industry should be comprehensive and include a complete list of products and services classified by each of the market segments.

Task 2: Market Drivers

Identify market forces that could result in the creation and expansion of the industry. These market forces can include technology development, rules and regulations, public and private initiatives and public attitude.

Task 3: Business Profile

Identify and profile all businesses in the industry classified by the market segment. The profile should include complete contact information including address, phone and fax numbers, email and the name of the contact person; a list of relevant products and services produced by the business; the value of those products; the number of jobs associated with production of climate friendly products and services; and export value.

Task 4: Data Quantification

Aggregate data collected at the firm level to the economy-wide level. The aggregated data on revenues, jobs and export should be used to project the growth of the industry in the next 20 years.

The California industry size and growth should be compared with the industry size and growth on a national and global scale. The importance of the climate change industry to the California economy should be highlighted by comparing its size and growth with those of other important industries in California.

EXHIBIT A Standard Agreement

Task 5: Final Report and Deliverables

Prepare a final report, which will include: 1) a comprehensive definition and segmentation of the climate change industry including its products and services, 2) a directory of businesses active in the climate change industry, 3) an explanation of how financial and economic data were collected or estimated for the industry and their underlying assumptions, and 4) an evaluation of the climate change industry and its growth and impact on the California economy in the next twenty years.

8. Meetings:

Prior to beginning the contracted work, the Principal Investigator and key personnel shall meet with the ARB contract manager and other ARB staff. The meeting location will be at ARB offices in Sacramento and the meeting topics will cover the overall project plan, details of performing the tasks, the project schedule, personnel or changes in personnel, and any issues that should be resolved before work can begin.

The contractor will participate in regular progress meetings with the ARB project manager and other ARB staff. These meetings will most likely take the form of telephone conferences but face-to-face meetings may be held if deemed appropriate by ARB staff. The interval between meetings should be no more than quarterly, and may be more frequent as deemed necessary by ARB staff. The contractor should be prepared for open, two-way communication with ARB staff throughout the course of the project.

Within two months subsequent to the completion of the project and the formal approval of the final report, the contractor will present a technical seminar to ARB staff and other interested parties. The seminar will cover the entire project including the purpose, methodology, and results. The seminar will take place at ARB's facilities at a date and time to be coordinated through discussion with the ARB project manager.

9. CONTRACT DELIVERABLES

In addition to the deliverables listed in the Scope of Work, the contractor will provide quarterly invoices and electronic progress reports. These progress reports should follow the format defined in ARB's progress report guidelines, (see Exhibit E) and discuss the status of the project to date, the progress since the previous progress report, significant problems addressed during the quarter, significant problems to be addressed in the next quarter, and work planned for the next quarter. The quarterly progress report should also quantify the percentage of work accomplished to date and percentage of budget used to date.



ENVIRONMENTAL BUSINESS INTERNATIONAL, INC.

Research, consulting and publishing for the environmental industry

Technical Proposal
ORIGINAL COPY

**The Climate Change Industry in California: An Economic
Analysis Assessing the Current Market and Prospects for
Growth in the Global Economy**

Principal Investigator/Project Manager: Grant Ferrier
Business Officer: Grant Ferrier

Contract Officer: Jeff Turner
Research Manager: Katja Rauhala
Research Manager: Fiona O'Donnell-Lawson

Official Authorized to Bind this Proposal:

Grant Ferrier, President, Environmental Business International, Inc.

Signature _____

Prepared for:

State of California
Air Resource Board
Research Division
2020 L Street
Sacramento, CA 95814

Prepared by:

Environmental Business International, Inc.
4452 Park Boulevard, Suite 306, San Diego, CA 92116
Phone: (619) 295-7685 • Fax: (619) 295-5743 • www.ebiusa.com

October 10, 2007

October 10, 2007

Mary D. Nichols, Chairman
Cheryl Smith, Contract Services Section
Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Proposal on Climate Change Industry Business Research by EBI Inc.

Dear Ms. Nichols and Ms. Smith:

I am writing to submit a proposal to conduct the study for the State of California Air Resources Board entitled, "The Climate Change Industry in California: The Current Market and Prospect for Growth in the Global Economy". This proposal is submitted in response to RFP Number 07-315.

Environmental Business International, Inc. (EBI) has been the leading environmental industry research, publishing and consulting firm since our founding in 1987. EBI's flagship publication, *Environmental Business Journal* (EBJ), has been the leading business publication on the environmental industry since 1988, read monthly by up to 4,000 company executives and other interested parties in the government, investment and regulated community.

Later in October 2007, EBI will launch a new business publication entitled *Climate Change Business Journal*TM, which has been under development for the last several months and will define and track the Climate Change Industry in the U.S. The complementary *CCBJ News* is already being distributed weekly and is available on our website climatechangebusiness.com.

EBI is known for pioneering a widely adopted definition of the environmental industry, characterizing 14 business segments in our groundbreaking work that began almost 20 years ago. We look forward to producing similarly groundbreaking research in partnership with ARB on the emerging Climate Change Industry.

In the course of our publishing and consulting work, EBI has invested in building extensive company databases and maintaining solid relationships with environmental and clean energy industry associations, think tanks, government research entities and the academic community. EBI has also successfully completed numerous environmental market studies for both private and government clients. EBI data and analysis on environmental market segments (including renewable energy and air pollution control) is used by the U.S. Department of Commerce, OECD, United Nations and many other public and private organizations including the ARB.

A study entitled, "The Impacts of the Air Pollution Control Industry on the California Economy," was prepared for the Air Resource Board in 2002 under a contract similar to the one currently being tendered and for which we attach our proposal.

Our organization is dedicated to the Environmental Industry and the newly emerging business sectors coalescing around climate change policy, which we define as the Climate Change Industry. We believe in a public-private partnership to increase government's understanding of the Climate Change Industry, and it is in this spirit of cooperation that we submit our proposal. We respectfully offer to marshal our considerable experience in characterizing emerging markets, our unparalleled national and state knowledge of the environmental industry, and extensive access to company executives to assist the ARB in achieving its objective of making California a leader in enlightened but measured climate change policy, and ultimately a leader in the Climate Change Industry itself.

We believe we have the qualified personnel, management experience and extensive research project experience to meet the demanding requirements of ARB's Climate Change Industry analysis. Importantly, we have earned a strong reputation for industry quantification, and many in the government and the private sector would attest that EBI figures are by far the most widely recognized and sourced in the environmental industry. Our qualifications are well known to a broad range of managers and staff at those U.S. government agencies that regularly use our services and collaborate with us on economic analysis and export promotion activities.

We believe our experience and proprietary research assets make us uniquely qualified to deliver credible, detailed information and defensible forecasts on the emerging Climate Change Industry.

Thank you for kindly considering this proposal.

Sincerely yours,

Grant Ferrier, President
Environmental Business International, Inc.

I hereby attest that the technical and cost proposals that follow are firm for a period of not less than 150 days after the submittal date.

Sincerely,

Grant Ferrier, President
Environmental Business International, Inc.

Project Personnel:

Principal Investigator/Project Manager: Grant Ferrier
Business Officer: Grant Ferrier
Contract Officer: Jeff Turner
Research Manager: Katja Rauhala
Research Manager: Fiona O'Donnell-Lawson

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1. Statement of Significance

Environmental Business International (EBI) is pleased to submit this proposal for a study on The Climate Change Industry in California: The Current Market and Prospect for Growth in the Global Economy. This study, conducted for Air Resource Board and in response to RFP Number 07-315, seeks to define and quantify the Climate Change Industry, forecast growth scenarios and characterize California's position in this industry today, in addition to the state's potential for developing a robust Climate Change Industry as technology and policy evolves.

Other state agencies will also benefit from this study, which will demonstrate the potential influence of the Climate Change Industry on California's general economy, job market and technology sector, in addition to describing the state's strengths and weaknesses in the context of the global Climate Change Market.

New government policies related to air pollution and greenhouse gas emissions are early market drivers for what we term the Climate Change Industry. However, perhaps more important is a whole slate of new technologies being developed and commercialized beyond the realm of regulatory requirements to limit the growth of greenhouse gas emissions.

We believe this study provides an important opportunity to capture and quantify California's current and future role in the emerging Climate Change Industry, illustrating industry dynamics and market drivers that support the development of new technology and other climate change solutions. The study will also help the state to plan how to encourage the development of business, jobs, and global competitiveness in the field.

The Climate Change Industry lacks a universally accepted definition, without which it's impossible to say where California ranks in the U.S. or globally. EBI's study will help to establish ARB and California as key players, even pioneers, in this relatively undefined sector by creating the first ever comprehensive definition, segmentation and quantification of the Climate Change Industry—one which we believe it is reasonable to expect could become widely adopted.

Besides defining the multiple business segments that comprise the climate change business in California, EBI's study will establish a benchmark for measuring the size and growth of those segments.

Activities of companies in certain environmental sectors often can provide perspective on the effectiveness of environmental policy. With the help of this analysis, potential ARB greenhouse gas policy instruments can be assessed in terms of their potential to stimulate positive economic results like revenues, jobs and exports, and to improve social indicators like efficiency, reduced emissions and increased energy security.

With leadership in an emerging and potentially very large industry at stake, an assessment of California's potential will help the state to identify and develop programs in support of its Climate Change Industry. EBI's numerous industry contacts built over the last two decades means we are well positioned to collect the hard-to-get market information required for this study, and our years of experience in environmental market analysis qualify us to provide historical data and trend analysis.

2. Abstract

Environmental Business International proposes to define and quantify the Climate Change Industry today and forecast its potential in the next 20 years. EBI proposes to conduct a study of California's role in the emerging Global Climate Change Industry and its potential impact on the state's economy. As discussed in the Technical Plan section of this proposal, EBI proposes to perform the study and complete a report that will consist of 7 sections:

- (1) Definition and Segmentation of the Climate Change Industry
- (2) Market Drivers: Review of Current Government Programs and Regulations and Economic or Industry Drivers for the Climate Change Industry
- (3) Quantification of the Climate Change Industry by Segment
- (4) Profiles of Segments in the Climate Change Industry
- (5) Listing of Climate Change Industry Firms
- (6) Forecasted Growth of the Climate Change Industry
- (7) The Climate Change Industry's Impact on California's Economy

3. Management

This official Project Manager of this research project Grant Ferrier, president of Environmental Business International Inc. Mr. Ferrier will be completely responsible for all phases of the project and will be participating at a detailed level in every task. His industry research background dates more than 20 years and his personal interest in the subject matter dates even further back to environmental work he did in his teens.

Day-to-day operations and coordination of research assignments and data compilation will be the responsibility of Katja Rauhala. Ms. Rauhala often goes by the title of Project Manager in her functions at EBI and her title referenced in this proposal may cause some confusion, but Mr. Ferrier is the officially designated Project Manager for this assignment with primary responsibility for content and quality of the study. Other contributors to the project will be senior researchers George Stubbs, Jim Hight and Fiona O'Donnell-Lawson and clerical and administrative assistant Moe Wittenborn. In the personnel section below are resumes of the EBI staff involved in the project.

4. Project Objectives

The objective of this study is to define, profile, analyze, quantify and forecast the growth and development of the Climate Change Industry in California and worldwide. A related objective is to characterize the Climate Change Industry's current status and assess its relative importance to the California economy today and what it could represent in the coming decades in terms of economic contribution and even overall state competitiveness. The project research will also identify market drivers that can help in further development and growth of the Climate Change Industry in California.

By providing perspective on the Climate Change Industry, this study can provide perspective or a framework for state agencies in charge of implementing climate change initiatives in assessing the positive economic impacts of their regulatory actions. A related goal is to help support ARB and other state agencies to determine possibilities for the state's role in fostering market drivers, technology development and other programs and policy in support of the Climate Change Industry in the state of California.

The study will provide the following elements:

1. Definition and Segmentation of the Climate Change Industry

The study will involve defining the Climate Change Industry in terms of business segments, identifying companies in each segment, and collecting and compiling revenue data on as many companies as possible. Building databases of companies, reviewing existing information, conducting surveys, and performing interviews will all be elements of this research. Based on this analysis, we will establish a uniform definition to be used throughout the study. Below we present a list of issues drawn up by EBI in early 2007 to provide a preliminary framework for the Climate Change Industry. (Note: See more detailed segmentation proposed in the sections below.)

Potential Framework for Climate Change Industry: Issues to be Addressed

Energy
Energy Efficiency (Services, Practices & Equipment)
- Efficient & Green Buildings: residential, commercial, community-scale
- Industrial efficiency and co-generation; on-site power
- Smart transmission and distributed generation
- Expanded demand side mgmt.; consumer campaigns
Low Carbon Power Generation
- Power from coal or gas with carbon capture - storage
- More nuclear power
- Renewable power: wind, biomass, solar, geothermal
Transportation
- Vehicles and motors
- Non-grain Biofuels
- Electrified transport (plug-in hybrids)
- Hydrogen fuels (from nuclear or renewables)
- Mass transport systems/programs
- Alternative transportation infrastructure
- Alternative fueling infrastructure (Hydrogen, CNG, electric charging, etc.)
- Telecommuting, traffic flows
Sinks and Resource Management (CO₂ + Methane)
Sequestration: Aquifer Seabeds
Sequestration: Subsurface
Macro Geo-Engineering
Atmospheric separation; Carbon capture
Aggressive forestry
Agricultural soil management
Landfill gas capture
Livestock management
Adaptation
Coastal building and community measures
Community preparation & Emergency response systems
Other
Emissions Trading
Consulting & Engineering: services from emission inventories to power systems
Climate Science & Studies
Research & Development
Technology Development

2. Market Drivers: Review of Current Government Programs and Regulations and Economic or Industry Drivers for the Climate Change Industry

Unlike most of the environmental industry's main business segments, like Remediation or Hazardous Waste Management, for example, the Climate Change Industry won't be predominantly driven by government regulations and enforcement policy, with some important exceptions like the California Global Warming Solutions Act of 2006 (AB 32). In fact, many experts surmise that technology will often lead the regulations rather than vice versa, as summarized in ARB's recent document and subsequent updates: "Proposed Early Actions To Mitigate Climate Change in California."

In EBI's analysis for ARB, we propose to catalog current climate change technologies and forecast their growth and that of related services, in addition to portraying future climate change technologies likely to change the landscape of business over the next 20 years.

Market drivers likely to impact government and industry expenditures on climate change solutions and new energy futures will be discussed. These may be purely economic, like the price of oil, natural gas or other fuels, or they may be economic incentives, political incentives like energy security imperatives, private initiatives like corporate voluntary programs, or business initiatives like GE's commitment to 'ecomagination'. They may also include consumer initiatives like purchasing offsets and putting pressure on corporations and utilities, or investor groups looking out for stakeholders. We believe these and other factors will impact the growth and development of the Climate Change Industry over the next 20 years.

The study will also profile existing and proposed climate change regulations and their enforcement at local, state, federal and global levels, analyzing and forecasting their role as market drivers of the Climate Change Industry in California.

Potential Market Drivers for Climate Change Industry
● Kyoto Protocol
● California state motor vehicles pollution control standards (AB 1493)
● California Global Warming Solutions Act of 2006 (AB 32)
● AB 1493
● Low Carbon Fuel Standard
● ARB emissions programs for HFCs, PFCs, manure, and other GHGs
● Efficiency standards
● Clean Air Act: EPA rules
● Risk Management Plans
● California Air Quality Standards
● Local/Regional Standards in California Air Districts
● Special Programs (e.g. ReClaim, etc)
● Carbon and other Emission Trading Programs
● Carbon Taxes other Involuntary Methods/Regulations
● Voluntary Carbon Reductions: Carbon Offset Purchase
● Pub. Pressure/Corporate Environmentalism

• TRI Listings: Carbon to be added?
• Others

**(3) Quantification of the Climate Change Industry by Segment; and
(4) Profiles of Segments in the Climate Change Industry**

The study will estimate segment current market size and growth potential in terms of:

- Revenues (by product or equipment type, or service type)
- Exports
- Jobs
- Number of Companies

The definition and segmentation established in Section 1 will be used for each of the above items.

(5) List of Climate Change Industry Firms

California's climate change companies will be classified and listed with their contact information, including key contact person's name, phone number, fax, and email. The study will include the list by segment type as defined in Section 1.

(6) Forecasted Growth of the Climate Change Industry

The growth of California's Climate Change Industry will be forecasted in potential scenarios for development and growth at a statewide, national, and even global level. This analysis will be performed on a segment-by-segment approach that will total to the Climate Change Industry, allowing interested parties to separate out segments. Each segment research will be conducted using a 'bottom up approach' where direct contact with companies in each segment by interview, survey, email questionnaires and other methods will be used.

(7) The Climate Change Industry's Impact on California's Economy

The contribution of California's Climate Change Industry as a function of California's overall economy today and in the foreseeable future will be characterized. California's contribution to the global Climate Change Industry will also be characterized in terms of what percentage it represents and what it could represent.

5. Methodology

Environmental Business International has experience in conducting studies similar to the Climate Change Industry study proposed here. Much of the expertise as well as industry data needed for the ARB study would be available in-house at EBI. Our reputation in the environmental industry and existing relationships with executives in California's environmental, energy and clean energy industries will be instrumental in completing the study to the highest standards.

While EBI has made a business of studying the environmental industry since 1987, we are always open to new ways of looking at the industry and different methods of research to augment the material we have collected over the years. In the literature collection phase of the ARB study we will make a broad assessment of all pertinent materials on the industry and those collected and compiled by ARB and other state agencies.

We have given extensive consideration to our technical approach to the development and implementation of this research. Upon receipt of the contract, our team will convene a meeting with ARB staff to begin the implementation of an initial management plan and schedule. We look forward to a cooperative approach with staff members of ARB in order to create the best possible research outcome.

Key elements of our approach are described below:

5.1. *Standard Statistical Analysis and Experimental Techniques*

EBI uses generally accepted statistical modeling techniques to determine market size based primarily on:

- Identifying as many companies as possible in a given segment;
- Identifying the top ranking companies in a given segment;
- Determining sales volume of the top companies;
- Selecting a representative sample of smaller companies to survey on which to model the universe of smaller companies in defined segments or size category
- Constructing a model of total revenues generated by companies of each size category to represent the entire market size.
- Numerous interviews with sector participants to test conclusions.
- Presentations of industry data conclusions at selected forums.

5.2. *Tasks and How They Will Be Completed*

Definition and Segmentation of the Climate Change Industry

EBI's definition and segmentation of the environmental industry appears regularly in Clean Energy, Resource Recovery and Air Pollution Control among the business segments it has tracked for the last two decades.

Environmental Industry Segments Researched and Quantified by EBI Since 1988

SERVICES
Analytical Services
Wastewater Treatment Works
Solid Waste Management
Hazardous Waste Management
Remediation/Industrial Services
Consulting & Engineering
EQUIPMENT
Water Equipment and Chemicals
Instruments & Information Systems
Air Pollution Control Equipment
Waste Management Equipment
Process & Prevention Technology
RESOURCES
Water Utilities
Resource Recovery
Clean Energy Systems & Power

EBI's definition and segmentation of the environmental industry is extensively used by government agencies and leading publications. U.S. Department of Commerce, for example, uses EBI's industry definition regularly. Our new business newsletter, *Climate Change Business Journal™*, will start publishing its segmentation of the Climate Change Industry beginning in Fall 2007. Over the last several months, EBI has been developing a definition of the Climate Change Industry. This is a work in progress, and modifications are constantly under consideration.

EBI will apply its existing knowledge to the ARB study with the aim of developing a universally accepted, uniform definition of the Climate Change Industry. EBI will also conduct an extensive literature search and present various definitions used in other documents and reports on the Climate Change Industry (or on segments and subsegments identified). Each will be assessed for its inclusiveness and pertinence to California and, in collaboration with ARB and stakeholders' input, a working definition will be agreed upon in the earlier phases of the project.

A number of research organizations and government agencies have produced publications (but very little in the way of market studies or economic reports) on Climate Change or Global Warming. Many of these are already in EBI's possession in varying forms—from complete reports to executive summaries.

Following are the segments that comprise EBI's working definition of the Climate Change Industry; EBI has already embarked on basic data collection analysis of several of these in the course of preparing for the launch of *Climate Change Business Journal*.

Potential Framework for the Climate Change Industry

The Climate Change Industry: Major Segments*

Clean Energy/Renewable Energy Systems & Equipment
Clean Energy/Renewable Energy Development & Power Sales
Energy Efficiency: Services & Equipment
Distributed Energy: Equipment & Systems
Low Carbon Conventional Power Generation
Green Buildings
Transportation Vehicles
Transportation Fuels
Transportation Systems
Sinks and Resource Management
Adaptation
Services

*Note: EBI will make every effort to eliminate any double counting in our quantification models

The Climate Change Industry: Segment Detail

Clean Energy/Renewable Energy Systems & Equipment

Solar Power Systems & Components
Wind Power Systems & Components
Biomass, Biofuel, Biogas, Landfill Gas Equipment
Hydro Power, Mini-Hydros
Geothermal Equipment
Wave & Tidal Power Equipment
Other

Clean Energy/Renewable Energy Development & Power Sales

Solar Power Electricity Sales & Power Generation
Wind Power Electricity Sales & Power Generation
Biomass, Biofuel, Biogas, Landfill Gas Electricity Sales & Power Generation
Hydro Power, Mini-Hydros
Geothermal Electricity Sales & Power Generation
Wave & Tidal
Other

Energy Efficiency Services

Demand side management
Consumer/user educational campaigns
Audits, design, engineering, retrofits

Equipment/Supply

Lighting
Building Insulation, Materials
Machinery
Motors
Appliances
Transportation vehicles
Co-generation; on-site power reuse

Distributed Energy

Microturbines
Fuel Cells
Hydrogen Generation
Flywheels
Smart transmission
Battery Technology & Energy Storage

Low Carbon Conventional Power Generation

Coal or gas with carbon capture/storage
Nuclear power
Clean Coal Gasification

Other Energy

Energy Recovery/Recycling
Waste-to-Energy

Green Buildings

Green Building Design
Green Building Construction /Contracting
Green Development
Green Building Materials (recycled or Resource efficiency)
Energy efficiency devices: power and heat
Water conservation & reuse devices
Indoor air quality filters & monitors
Smart building systems

Transportation

Transportation Vehicles

Finished Vehicles: Hybrid, Electric, CNG, others

Vehicle motors, parts, components

Transportation Fuels

Grain Biofuels

Non-grain Biofuels

Electrified transport (plug-in hybrids)

Hydrogen fuels (from nuclear or renewables)

Transportation Systems

Urban Design/Land Use

Public Transportation

Telecommuting

Traffic Engineering

Sinks and Resource Management (CO2, Methane, all GHGs)

Sequestration: Aquifer Seabeds

Sequestration: Subsurface

Sequestration: Aggressive forestry, biomass

Macro Geo-Engineering

Atmospheric separation; Carbon capture

Agricultural soil management

Landfill gas capture

Livestock management

Adaptation

Coastal building and reconstruction; Walls, Breaks, etc.

Community preparation education and exercises

Emergency response preparedness systems

Agricultural/Livestock migration

Population transfer/development

Services

Emissions Trading

Consulting & Engineering: emission inventories, audits, carbon power systems

Climate Science & Studies

Research & Development

Technology Development

Carbon Offsets

Market Drivers:

Technology

Technology related to climate change will evolve rapidly to fulfill market needs. Markets will be driven by carbon emission reduction targets, both voluntary and involuntary. There will be regulatory drivers, standards and requirements, but there will also be a number of non-regulatory drivers, many of them related to technology solutions undertaken by industry and government related to energy savings, energy security or pollutant reductions that will also have direct carbon or climate change impact.

These market drivers will impact government and industry expenditures on climate change solutions and new energy futures. These may be purely economic like the price of oil, natural gas or other fuels, economic incentives, political incentives like energy security imperatives, private initiatives like corporate voluntary programs or business initiatives like GE's commitment to 'ecomagination'. Alternatively they may be consumer initiatives like purchasing offsets and putting pressure on corporations and utilities, or investor groups looking out for stakeholders. We believe these and other factors will impact the growth and development of the Climate Change Industry over the next 20 years.

Review of Government Programs and Regulations

A summary analysis of climate change programs at all levels of government will be presented as a result of a broad literature research and existing ARB documents. These programs will be assessed both for their current contribution and potential as market drivers of the Climate Change Industry.

In addition, EBI will consider a number of non-regulatory drivers. We will survey firms from all segments about the extent to which each market driver influences their business. We will also conduct separate opinion surveys to gather information about how firms have been affected by various climate change programs. Results will be tested by interviewing key industry executives to get their view of the future of both economic and government market drivers.

Below is a list of potential regulatory market drivers that EBI expects to assess.

Potential Regulatory Market Drivers
• Kyoto Protocol
• California state motor vehicles pollution control standards (AB 1493)
• California Global Warming Solutions Act of 2006 (AB 32)
• Low Carbon Fuel Standard
• ARB emissions programs for HFCs, PFCs, manure, and other GHGs
• Efficiency standards by CEC and others
• Clean Air Act: EPA rules
• Risk Management Plans
• California Air Quality Standards
• Local/Regional standards in California Air Districts
• Special Programs (e.g. ReClaim, etc)
• Carbon and other emission trading programs
• Pub. Pressure/Corporate Environmentalism
• TRI Listings: Carbon to be added?
• Others

5.3. *Data Management Plan*

EBI uses generally accepted statistical modeling techniques to determine market size based primarily on:

- Identifying as many companies as possible in a given segment;
- Identifying the top ranking companies in a given segment;
- Determining sales volume of the top companies;
- Selecting a representative sample of smaller companies to survey from which to model the universe of smaller companies in defined segments or size category
- Constructing a model of total revenues generated by companies of each size category to represent the entire market size.

In parallel with these models, spending data is also collected from secondary sources primarily and reconciled against conclusions about revenue generation. In addition, interviews are conducted with experts in government, business, non-profits and academia to obtain qualitative assessment of segments, as well as to test conclusions of quantitative models.

5.4. *Database of Climate Change Firms*

In order to execute the industry survey effectively, EBI plans to update and build new databases of firms in the above-mentioned segments. Based on EBI's nationwide data and lists, as well as other information sources, we expect to identify and compile the list of climate change companies in each of the main segments as defined. Each firm will be contacted and verified and profiled to some extent, within the scope of the resources available for this project. EBI will also benefit from other directories compiled on Environmental Business International, Inc.

the U.S. and California environmental industry published by other journals, national and state trade associations and previous state efforts, including the directory of California environmental companies published by Cal EPA and Trade & Commerce and others.

5.5. Profiles of the Climate Change Industry

EBI will provide a comprehensive profile of the Climate Change Industry. All the segments outlined will be surveyed by EBI. We expect to be able to effectively define, analyze and estimate the size of the Climate Change Industry in the United States and worldwide, augmenting this with state-specific research conducted specifically for this project to assess California's market and industry size.

Profiles of the industry will discuss historical growth since 1990 in terms of:

- Revenues
- Exports (as well as domestic business for California environmental companies outside of the state)
- Employment
- Number of Companies
- Capital investments made into and by the Climate Change Industry

The definition and segmentation established in task one of this project will be used for each of the above items.

Tables will be presented which depict size of the industry by 2005 and 2006, demonstrating recent growth in particular sub-sectors to illustrate the effect of certain programs or economic conditions.

5.6. California's Role in the Climate Change Industry

The analysis performed in previous phases of this study will provide valuable information that will help California develop programs to support the Climate Change Industry. Assessments will be made to link growth of the Climate Change Industry to the adoption and implementation of specific climate change regulations and programs nationally and specifically in California.

We will also compare and analyze industry size in California, the United States, and globally. Analysis, quantification and discussion will be presented on California's Climate Change Industry and its contributions to the economy in revenues (and the resulting tax base), employment and business outside the state and outside the country.

Analysis and discussion will also be presented on how an advanced, progressive approach to defining and quantifying the Climate Change Industry could stimulate California's role in this emerging industry. This could also create growth in ancillary industries that spring up to provide more efficient and less-polluting alternatives, and these areas will be outlined and discussed.

Finally the previous sections and the conclusions in this section will be summarized in a 2-3 page Executive Review to be included at the beginning of the final research report and even circulated as an independent document to pertinent agencies and the public.

5.7. *Final Report*

Upon completion of our research for the ARB project, a final report will be produced. Although agency and project objectives may change slightly with time, EBI anticipates that, with ARB's direction, the report will include the following sections:

- Executive Summary
- Definition and Segmentation of the Climate Change Industry
- Market Drivers: A Review of Government Programs and Regulations
- Profiles of the Climate Change Industry
- The Climate Change Industry's Impact on California's Economy
- Directory of Climate Change Firms

The Executive Summary is expected to be no more than 2-3 pages and may even be limited to one page, understanding that brevity is essential in order to capture and retain interest. A more detailed four-page summary may also be prepared for distribution to other agencies, elected officials, the industry, the press, etc.

Each subsequent section will range from 20-30 pages, with the directory of firms expected to be considerably longer and attached as an appendix.

Research materials will be cataloged and filed for use by ARB and subsequent researchers. As far as possible this material will be electronic, although it should be understood that historical documentation might not be available in electronic form.

5.8. *References to publications describing similar work done by others*

Secondary data collected will be cataloged in a very detailed manner.

6. Work Plan and Work Schedule

6.1. Anticipated Personnel Work Plan

ARB Climate Change Industry Research

Description		Total Hours
Task 1	Literature Review	425
Task 2	Basic Research on Climate Change Sectors	515
Task 3	Profiles and Interviews on Climate Change Sectors and Companies	700
Task 4	Possible Impacts on Global Markets and the California Economy	540
Task 5	Final Report & Deliverables	660
Total		2,840

Anticipated Personnel Work Plan, Table I (Months 1-12)

		Month												
		1	2	3	4	5	6	7	8	9	10	11	12	
Personnel														
Senior Expert	Task 1	40	5	5	5	0	0	0	0	0	0	0	0	0
Total Hours: 500	Task 2	0	0	0	0	5	5	5	40	0	0	0	0	0
	Task 3	0	0	0	0	0	0	0	0	40	10	10	10	0
	Task 4	0	0	0	0	0	0	0	0	0	0	0	0	0
	Task 5	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Manager	Task 1	40	40	40	40	0	0	0	0	0	0	0	0	0
Total Hours: 1200	Task 2	0	0	0	0	60	60	60	60	0	0	0	0	0
	Task 3	0	0	0	0	0	0	0	0	20	60	60	60	0
	Task 4	0	0	0	0	0	0	0	0	0	0	0	0	0
	Task 5	0	0	0	0	0	0	0	0	0	0	0	0	0
Technical/Research Support	Task 1	40	40	40	40	0	0	0	0	0	0	0	0	0
Total Hours: 900	Task 2	0	0	0	0	40	40	40	40	0	0	0	0	0
	Task 3	0	0	0	0	0	0	0	0	60	60	60	60	0
	Task 4	0	0	0	0	0	0	0	0	0	0	0	0	0
	Task 5	0	0	0	0	0	0	0	0	0	0	0	0	0
Clerical	Task 1	20	20	10	0	0	0	0	0	0	0	0	0	0
Total Hours: 240	Task 2	0	0	0	0	20	20	20	0	0	0	0	0	0
	Task 3	0	0	0	0	0	0	0	0	10	10	10	10	0
	Task 4	0	0	0	0	0	0	0	0	0	0	0	0	0
	Task 5	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hours														

Anticipated Personnel Work Plan, Table II (Months 13-21)

Personnel	Task	Month									Total Hours
		13	14	15	16	17	18	19	20	21	
Senior Expert Total Hours: 500	Task 1	0	0	0	0	0	0	0	0	0	55
	Task 2	0	0	0	0	0	0	0	0	0	55
	Task 3	50	0	0	0	0	0	0	0	0	120
	Task 4	0	40	20	10	40	0	0	0	0	110
	Task 5	0	0	0	0	20	20	20	50	50	160
Project Manager Total Hours: 1200	Task 1	0	0	0	0	0	0	0	0	0	160
	Task 2	0	0	0	0	0	0	0	0	0	240
	Task 3	60	40	0	0	0	0	0	0	0	300
	Task 4	0	30	50	50	60	60	0	0	0	250
	Task 5	0	0	0	0	20	40	40	100	50	250
Technical/Research Support Total Hours: 900	Task 1	0	0	0	0	0	0	0	0	0	160
	Task 2	0	0	0	0	0	0	0	0	0	160
	Task 3	0	0	0	0	0	0	0	0	0	240
	Task 4	40	40	40	40	0	0	0	0	0	160
	Task 5	0	0	0	0	20	40	40	40	40	180
Clerical Total Hours: 240	Task 1	0	0	0	0	0	0	0	0	0	50
	Task 2	0	0	0	0	0	0	0	0	0	60
	Task 3	0	0	0	0	0	0	0	0	0	40
	Task 4	5	5	10	0	0	0	0	0	0	20
	Task 5	0	0	0	0	10	10	10	20	20	70
Total Hours											2840

6.2. Project Schedule

Task 1:	Literature Review
Task 2:	Basic Research on Climate Change Sectors
Task 3:	Profiles and Interviews on Climate Change Sectors and Companies
Task 4:	Possible Impacts on Global Markets and the California Economy
Task 5:	Final Report & Deliverables

	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Task 1	█											
Task 2				█								
Task 3								█				
Task 4												
Task 5												
	M			M			M					

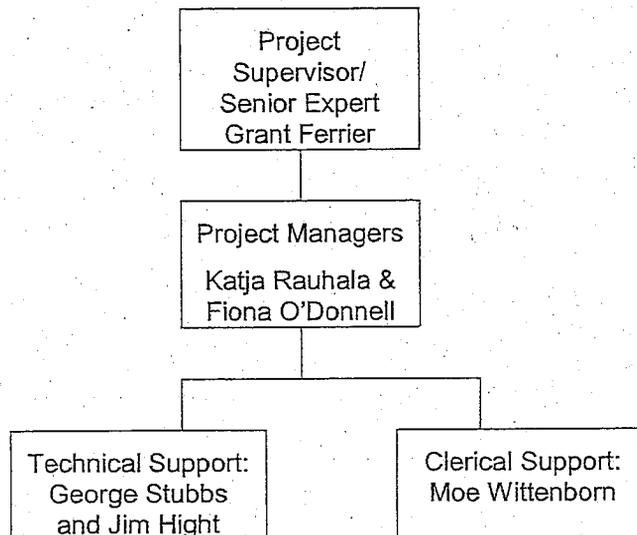
	Month								
	13	14	15	16	17	18	19	20	21
Task 1									
Task 2									
Task 3	█								
Task 4		█							
Task 5						█			
	M						DM	F	

M: Progress Review Meeting, **D:** Deliver Draft Final Report, **F:** Deliver Final Report

Note: Progress meetings can be tied to the intended quarterly payment schedule so that more specific milestones can be assigned to each progress meeting and therefore payment authorizations.

6.3. Project Management Plan

The study will be performed by senior EBI staff and highly experienced research and support staff. The following chart shows the EBI's staff organization for the study.



Grant Ferrier, president of EBI and editor of *Environmental Business Journal*, will be the designated Project Manager and act as overall supervisor with primary responsibility for content and quality of the study. EBI Research Managers Katja Rauhala and Fiona O'Donnell-Lawson will have day-to-day management of the data collection and cataloging for the study. They will be directly overseeing other personnel's tasks, coordinating weekly meetings, and reporting the progress to Mr. Ferrier. Other contributors to the project will be George Stubbs, Jim Hight and Moe Wittenborn.

6.4. Project Progress

		Month																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21				
Personnel	Senior Expert																									
	Task 1	10	5	10	25																					
	Task 2					10	5	10	25																	
	Task 3									10	5	10	10	15												
	Task 4													10	5	10	10	15								
Task 5																		20	10	20	50					
Project Manager	Task 1	30	30	20	20																					
	Task 2					30	30	20	20																	
	Task 3									20	40	40	50	50												
	Task 4													20	40	40	50	50								
	Task 5																		20	40	40	50	50			
Technical Support	Task 1	20	20	20																						
	Task 2					20	20	20																		
	Task 3									20	20	20														
	Task 4													20	20	20										
	Task 5																		20	20	20					
Clerical Support	Task 1	20	20	10																						
	Task 2					20	20	20																		
	Task 3									5	5	5														
	Task 4													5	5	5										
	Task 5																		5	5	10	20	20			

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7. Personnel

7.1. EBI Staff Plan

The study will be conceived and executed by senior EBI staff and experienced research and support staff. Grant Ferrier, president of EBI and editor of *Environmental Business Journal*, will be Project Supervisor with primary responsibility for content and quality of the study. EBI Research Managers Katja Rauhala and Fiona O'Donnell-Lawson will be responsible for primary day-to-day management of the study. Other contributors to the project will be senior researchers George Stubbs and Jim Hight and clerical and administrative assistant Moe Wittenborn. Following are brief resumes of key EBI staff involved in the project.

Grant Ferrier

President, Environmental Business International Inc.

Editor, Environmental Business Journal, Climate Change Business Journal

Grant Ferrier is President of Environmental Business International, Inc. Mr. Ferrier has a technical background with degrees in Mechanical Engineering and Conservation & Resource Studies from the University of California, Berkeley. Mr. Ferrier worked in academia and the private sector in energy efficiency, solar energy and wind energy from 1978-1984. He entered the publishing business in 1984 and became editor of two national trade publications before forming his own environmental publishing and research firm in 1987.

In 1988 he launched *Environmental Business Journal*. *EBJ* is a national monthly business newsletter providing a strategic overview of the environmental industry. *EBJ's* and Mr. Ferrier's research and opinions have been reproduced in *The Wall Street Journal*, *The Economist*, *Harvard Business Review*, *Fortune*, *The New York Times* and other leading publications. In October 2007 he launched *Climate Change Business Journal*, a business newsletter providing a strategic overview of the emerging Climate Change Industry. EBI has also produced over 25 comprehensive market research reports under his supervision. EBI also conducts proprietary market intelligence and management consulting projects for private companies and government agencies. Mr. Ferrier often serves as lead consultant, project manager or senior advisor on these assignments.

Previous significant U.S. government projects for which he has been primarily responsible include a global environmental market study on behalf of EPA's International Office, an export training guidebook and week-long training program for the Department of Commerce's Office of Environmental Technology Exports, a statistical analysis of the U.S. environmental industry's 14 segments quantifying companies, revenues, jobs and exports by state and Congressional district also for DOC OETE, and a competitiveness study of the U.S. environmental industry written for DOC's Office of Technology Policy.

Mr. Ferrier represents the interests of the environmental industry in many government and business forums. He has performed more than 150 speaking engagements on behalf of the U.S. environmental industry in 11 nations around the world. He has testified before three Congressional Subcommittees and has served on advisory committees for the OECD, the U.S. EPA and the U.S. Dept. of Commerce. He is chairman of the California Environmental Business Council, co-chairs the California Environmental Technology Partnership and serves on the board

of directors of the Environmental Export Council (Washington, D.C.) as well as three private corporations.

Katja Rauhala
Research Analyst & Project Manager
Environmental Business International Inc.

Katja Rauhala is a Senior Project Manager with Environmental Business International Inc. and a Research Manager of *Environmental Business Journal* and *Nutrition Business Journal*. She is responsible for company research, company surveys, secondary research of literature and the Internet, government document research as well as cataloging and coordinating all research materials into databases for internal and external use. She is also responsible for supporting the creation of industry size and industry forecast data models by EBI senior staff and collecting and compiling relevant material. She has experience working directly with both government and private sector clients on research projects. Katja is also responsible for producing, formatting and editing market research reports, such as EBI Report 2020, EBI Report 720, NBJ's Supplement Business Report, NBJ's Organic Foods Report and others, as well as presentation files for web seminars and in-person presentations.

Prior to joining EBI she worked as a financial analyst for an investment firm and as a financial advisor and economic analyst for American Express Financial Advisors conducting detailed research assignments involving wide-ranging data collection, aggregation of multiple data sources and economic data modeling.

Katja received a B.A. and an M.B.A. from the Helsinki School of Economics and Business Administration, Finland, focusing on statistics, mathematics and economic data models. Authored thesis: The Internet in the Internationalization Process of Small and Medium Sized Companies.

Jim Hight
Research Analyst & Editor
Environmental Business International Inc.

Jim Hight is a Contributing Editor of *Environmental Business Journal* and *Climate Change Business Journal* and a research analyst for Environmental Business International. Since 1999, he has analyzed dozens of segments, profiled more than 75 companies and written extensively about markets, technology, policy, marketing, finance and regulatory affairs in the environmental industry. Mr. Hight has consulted since 1983 for a wide range of private companies, public agencies and nonprofit organizations. His freelance writing career began in 1976, and his credits include: the Boston Globe, Technology Review, Sacramento Bee, Boston Business Journal, Nutrition Business Journal, Health Products Business and more than 30 other trade and consumer publications.

Highlights of Mr. Hight's employment history include: serving as Creative Director of the Boston marketing firm Robert Hohler Associates, in which capacity he crafted successful marketing programs for Oxfam America, Massachusetts Health Data Consortium, the Boston Chamber of Commerce and other clients; serving as communications manager for Boston's industrial development agency, Economic Development and Industrial Corp.; and founding and managing

United Youth, a citywide youth media-training program in Boston. Mr. Hight lives in Arcata, California, with his wife Elizabeth Conner, who manages Humboldt Bay Housing Development Corp.

George Stubbs
Research Analyst & Editor
Environmental Business International Inc.

George Stubbs is Senior Editor of Environmental Business Journal and manager of research projects. Mr. Stubbs has over 20 years of experience in journalism, working primarily for the environmental and electronics industries. He joined Environmental Business International in October 2001 after serving for more than 10 years as editor of Environmental Business Report (formerly Hazardous Materials Intelligence Report). Mr. Stubbs served as managing editor of the Massachusetts Environmental Ventures newsletter, a quarterly publication produced in cooperation with the University of Massachusetts-Boston's Environmental Business and Technology Center. In addition, he wrote quarterly environmental newsletters on behalf of such companies as Zurich American and PricewaterhouseCoopers. He holds a B.A. degree in philosophy from Lawrence University and an M.A. degree in philosophy from Washington University.

Fiona O'Donnell-Lawson
Research Manager
Environmental Business International Inc.

Fiona O'Donnell-Lawson is a Research Manager for Environmental Business International, Inc. She has a B.S. in Business Administration from the University of Vermont. Ms. O'Donnell-Lawson manages EBI's annual revenue survey process of more than 1,500 environmental companies in the United States, involving 26 databases and a universe of over 140,000 companies and revenue-generating entities. She is also responsible for quantitative analysis models for market quantification in eight segments of the U.S. environmental industry.

Ms. O'Donnell-Lawson has performed focused research on the air pollution control equipment, remediation, information technology and consulting & engineering segments and has been a principal contributor to EBI's detailed market research reports in each of these environmental business segments. She is also responsible for EBI's regional and state market quantification efforts, including EBI's annual environmental industry revenue, export and employment analysis. She has also managed proprietary research assignments for private and public sector clients.

Moe Wittenborn
Office Manager
Environmental Business International Inc.

Moe Wittenborn has been Office Manager for Environmental Business International since 1994. She has managed subscriber services and fulfillment, document production, data entry, database management, lunch preparation and other tasks as required.

8. References

8.1. **References: General Qualifications**

Environmental Business International (EBI) is a small business as defined by the U.S. Small Business Administration and the California Department of Transportation.

Environmental Business International, Inc. (EBI) is a research, publishing and consulting company serving the environmental industry and government agencies worldwide. EBI is best known as the publisher of *Environmental Business Journal (EBJ)*, a monthly newsletter published since 1988 and recognized as the environmental industry's leading business publication. *EBJ* is commonly referred to as The Wall Street Journal of the environmental industry. In October 2007 EBI launched *Climate Change Business Journal*™; a complementary news update on the Climate Change Business, called CCBJ News, is already being distributed electronically.

EBI is also known worldwide for its analysis and quantification of the global environmental industry. EBI's figures and analysis on the global environmental market are widely recognized as the most accurate source of such data and are commonly used and cited by the U.S. government, the OECD, the United Nations and hundreds of private corporations worldwide.

Environmental Industry Specialist

In the environmental industry, EBI has long been recognized as the top provider of market intelligence, market quantification, growth projections and competitive analysis. It is widely relied upon for the high quality of its published information products, market research and management consulting services. *EBJ* is read on a monthly basis by more than 5,000 environmental industry executives and other interested parties in government and in the investment and regulated communities. From 1994 to 1997 EBI published *Asia Environmental Business Journal*, a bimonthly publication covering the Asia-Pacific environmental market. In October 2007 EBI launched *Climate Change Business Journal*™, and in August 2007 we began electronic distribution of a complementary news update on the Climate Change Business, called *CCBJ News*.

EBI has produced more than 20 comprehensive market research reports on the U.S. environmental industry, covering all 14 industry segments, international markets, key growth and business opportunities such as strategic environmental management and mergers & acquisitions. Through annual revenue and performance surveys of more than 1,200 environmental companies, EBI provides ongoing, up-to-date market information on each of the 14 environmental industry segments. Survey data are used to compile market size models of each segment, breakdowns by customer, media and product or technology, and growth profiles on a year-to-year basis. Compiled information and analysis is published by EBI in detailed annual or semi-annual reports on each business segment or regional market. As a result of this continuing research process, EBI has amassed an impressive number of electronic databases, as well as detailed files on thousands of environmental companies based in the U.S. and abroad.

EBI's research and market quantification methodology was audited by Environmental Law Institute on behalf of the Administrator's office of the U.S. Environmental Protection Agency in 1995 to determine statistical validity as well as to broaden confidence in EPA's already wide

usage of EBI data. EBI's results and published data were categorically approved and continue to be the figures for U.S. and global environmental markets used by the Environmental Protection Agency, the Department of Commerce, the Department of Energy, U.S. Agency for International Development and many other federal, state and local agencies, as well as the vast majority of the private sector environmental industry. EBI's research and opinions have also been cited and reproduced in *The Wall Street Journal*, *The Economist*, *Harvard Business Review*, *Fortune*, *The New York Times* and other leading publications worldwide.

Environmental Industry Segments Researched and Quantified by EBI

SERVICES
Analytical Services
Wastewater Treatment Works
Solid Waste Management
Hazardous Waste Management
Remediation/Industrial Services
Consulting & Engineering
EQUIPMENT
Water Equipment and Chemicals
Instruments & Information Systems
Air Pollution Control Equipment
Waste Management Equipment
Process & Prevention Technology
RESOURCES
Water Utilities
Resource Recovery
Clean Energy Systems & Power

EBI's Market Research and Government Contracting Strengths

EBI's government contracting experience includes performing research related to environmental markets, environmental industry competitiveness, environmental exports, employment, technology commercialization, environmental policy development, environmental economics, resource economics and sustainable development. Clients include U.S. EPA, U.S. Dept. of Commerce, U.S. Agency for International Development, U.S.-Asia Environmental Partnership, U.S. Dept. of Energy, the states of California, Colorado and Massachusetts, the cities of Los Angeles, Chattanooga and Chula Vista, the governments of Canada, the United Kingdom, Israel, the Netherlands and India, as well as OECD and the United Nations.

Over the years, EBI has reported on global environmental markets for U.S. government and industry clients and other international institutions. A 1995 study funded through a grant from the

U.S. Environmental Protection Agency's Environmental Technology Initiative was a unique compendium of all available information on international environmental markets. Entitled "The Global Environmental Industry: A Market and Needs Assessment," the report contains data designed for use by U.S. companies in understanding which markets represent the best business opportunities, as well as data tools to facilitate decision points on selecting new market entry.

EBI has successfully completed contracts for the Department of Commerce related to: producing training materials and organizing a week-long training seminar for foreign commercial service and regional domestic officers; conducting a states forum on environmental business issues; analyzing the U.S. environmental industry's revenues, employment and exports by state, MSA and Congressional district; and preparing an environmental industry competitiveness study for the Office of Technology Policy's Meeting the Challenge series. EBI has also completed two of DOC OETE's export market plans within the last 12 months on Malaysia (under subcontract with Coleman research) and Korea (under a direct contract).

EBI has been contracted by the U.S.-Asia Environmental Partnership (a U.S. AID-funded agency) to perform research and produce studies related to three subjects: national market research in US-AEP nations; assessments of U.S. company needs related expanding business development activities in Asia; and case study profiles of major U.S. competitors financing and developing major environmental infrastructure projects in Asia.

EBI is the only private sector participant from the U.S. environmental industry on the OECD/Eurostat Working Group that is helping to create a consistent framework to define and measure the global environmental industry and publish a guide on how to perform environmental market research and quantification for OECD nations.

EBI's private sector consulting practice conducts proprietary market intelligence and management consulting projects for private companies to support opportunity evaluation, corporate development, strategic planning, technology commercialization, financial transactions, resource allocation in personnel and business development and other strategic objectives. Clients include leading multinationals like Monsanto, Hewlett-Packard, Westinghouse and Corning and environmental industry leaders like CH2M Hill, IT Corp., BFI, Dames & Moore, Safety-Kleen and numerous other corporations large and small. Recent projects that have included international environmental market research and strategic export planning advice have been on behalf of Monsanto, Durr Environmental, Caterpillar, Hydro Quebec, Black & Veatch, U.S. Filter and Wheelabrator Technologies.

8.2. References: Unique Qualifications of EBI

Environmental Business International Inc. (EBI) is uniquely qualified to define, quantify and forecast the Climate Change Industry for the following reasons:

EBI has built and maintains proprietary access to a number of databases of companies in selected segments of the Climate Change Industry: solar energy, wind energy, biofuels, fuel cell companies, green building suppliers, green building designers and builders, consulting engineers, etc. Accurate industry quantification 'from the bottom up' involves detailed segmentation, company identification and accurate surveying and interviewing. Building these segment databases is often half the battle in completing research, and often more than half the cost.

EBI has unique relationships with important organizations in the climate change field that will allow ready access to our researchers that others are unlikely to have. EBI's existing lines of research on renewable energy, energy efficiency, alternative fuels, vehicle technology, carbon trading, carbon offsets, carbon capture and storage, etc. have 'warm' contacts that are familiar with EBI, our work and reputation, helping to ensure their participation and cooperation. These organizations include government and policy groups like the Pew Center, GEMI and others, but more importantly industry associations like American Council on Renewable Energy, US Wind Energy Association, Solar Energy Industry Association, US Fuel Cell Council, US Green Building Council and others. The latter trade associations have already cooperated on research with EBI and promise more cooperation in the future.

EBI has a well-earned reputation for accurate industry research and forecasts in the environmental industry and is recognized worldwide for its industry definition and quantification. The US Census Bureau has used EBI data and forecasts in its annual Statistical Abstract for almost a decade. The US Department of Commerce uses EBI data in its documents and websites and commissioned EBI to perform its first and only assessment of the environmental industry by the Office of Technology Policy in 1998. The OECD regularly uses EBI data on the global environmental industry and national markets in its work, most frequently related to trade policy. Countless national, state and provincial governments use EBI data, as most of the private and public companies in the environmental industry.

EBI has a unique track record in crafting a new structure and definition for previously undefined industries. Beyond the intellectual challenge of structuring a new industry lacking in uniform government codes is the challenge of persuading the public and private sectors that the new definition has merit and should be adopted. EBI has succeeded on both counts and maintains its well-regarded position today by continuing to make minor modifications to its models when necessary. Besides defining and quantifying the U.S. and global environmental industries, EBI and its senior research staff undertook a similar groundbreaking definition and quantification of the Nutrition Industry under the aegis of EBI's sister publication, Nutrition Business Journal, in the mid 1990s. Climate Change will be the third major industry for which EBI has developed a measurable framework.

EBI has demonstrated methodology in 'ground-up' research where companies and their revenues are tracked and quantified in industry segments and then analyzed in segment models based on its proprietary databases of companies in each defined segment. This point is not to be underemphasized as almost anyone can publish or estimate an industry figure, but few can do it with consistent accuracy and reliability to establish a reputation and following like EBI.

EBI is in the process of investing in its own business unit to analyze the Climate Change Industry. A periodical entitled *Climate Change Business Journal*TM (CCBJ) is in development (see climatechangebusiness.com). Research on the segments proposed is underway, therefore, dollars invested by ARB in this analysis will be more than matched by EBI's current investment in researching and analyzing the very subject matter of the ARB report. We are confident that our final report for ARB, its forecast and conclusions will be all the more robust for this fortuitous and parallel development.

EBI will produce a high-quality result for likely one-third to one-quarter of the cost of what other research entities would ask for the same level of detail and perspective thanks to EBI's existing databases, access, reputation, track record, experience and climate change business

research already underway, making EBI-ARB a uniquely efficient partnership to produce a report on the Climate Change Industry.

8.3. *References: Recent EBI Projects*

Client Information:

OECD
Dale Andrew, Ron Steenblik, Joy Kim, Bonnie Schaefer
Trade Directorate
2, rue André-Pascal
75775 Paris Cedex 16
FRANCE
Tel: +33 1 45 24 95 29 Fax: +33 1 44 30 61 63
e-mail: Ronald.Steenblik@OECD.org, dale.andrew@OECD.org

Project Outline: EBI has undertaken three research assignments for OECD in the past two years. A report entitled: "The Impact Of Imported Monitoring Equipment On Air Quality Management Capacity In Developing Countries"; A report entitled: "The Impact Of Imported Monitoring Equipment On Water Quality Management Capacity In Developing Countries" and preparing and presenting a presentation for a joint OECD/Organization of American States meeting on trade & the environment in Costa Rica in October 2005. Grant Ferrier and Jim Hight conducted the research and delivered the final documents and presentation. Projects were completed in 2005 and 2006 and each project had a value of between \$8,000 and \$14,000.

Client Information:

Commission for Environmental Cooperation (CEC)
Chantal Line Carpentier, Ph.D
Head, Environment, Economy, and Trade Program
Commission for Environmental Cooperation
393 St-Jacques O, Bureau 200, Montreal
Quebec, Canada H2Y 1N9
t. (514) 350-4336
f. (514) 350-4314

Project Outline: EBI performed a research project and submitted a report for CEC on the level of environmental trade in the NAFTA region. Revenue figures were provided on environmental industry segments in all three nations and exports and intra-NAFTA and extra-NAFTA exports/imports were quantified. As part of the assignment, EBI expanded its definition to include EPPs (environmentally preferable products) and worked with CEC and its funding agencies including US EPA to add sustainable timber, sustainable agriculture and eco-tourism to the segments. Grant Ferrier and Katja Rauhala conducted the research and delivered the final documents. Project were completed in 2005 had a value of \$22,000. (Note: EBI is currently conducting a study on the impact of NAFTA on the evolution of the environmental industry in Mexico for CEC, and Chantal has recently taken an assignment with the UN in New York.)

Client Information:

Alexey Vikhlyayev
Division on International Trade in Goods and Services and Commodities
Room E8009
UNCTAD
Palais des Nations
8-14 Avenue de la Paix
1211 Genève 10
Suisse

Project Outline: EBI performed support research and data contributions to UNCTAD meetings and white papers on environment and trade in cooperation with WTO in Geneva, principally to support the education of negotiators from developing nations on the environmental industry. George Stubbs, Dan Noble and Grant Ferrier conducted the research and delivered the final data sets, documents and presentation. Projects were completed in 2005 and 2006 had a value of \$5,000 to \$10,000.

Client Information:

Environmental Capital Partners
William W. Staudt
Managing Partner
Environmental Capital Partners
6 East 43rd Street
New York, NY 10017
Tel: 917-262-5240
Fax: 917-262-5259

Project Outline: EBI produced a white paper for a private equity firm looking to focus on environmental and socially-related investments. EBI worked to define and quantify both market size and number of companies operating in a new sector defined to include The U.S. Environmental Industry; The U.S. Green Products & Services Industry; The U.S. Green Building Industry; and The U.S. Clean Energy Systems & Power Industry. Grant Ferrier and Katja Rauhala conducted the research and delivered the final data sets, documents and presentation. Projects was completed in March 2007 for \$15,000.

Client Information:

Global Environment Fund
Scott Vicary, CFA
Managing Director
Global Environment Fund
1225 Eye Street NW

Washington DC 20005
tel. +1 (202) 789-4500 ext. 112
fax (202) 789-4508

Project Outline: EBI produced a white paper for a private equity firm looking to focus on environmental industry investments in the developing world. EBI quantified both market size and number of companies operating in a number of countries and provided a discussion of market drivers, growth forecasts and market evolution scenarios. Gerogre Stubbs, Grant Ferrier and Fiona O'Donnell conducted the research and delivered the final report and data sets. Projects was completed in November 2006 for \$25,000.

Note: While past three years, of some relevance is a \$120,000 study of the economic contribution of the Air Pollution Control Industry for ARB. Reza Mahdavi was project officer in charge and can offer comments on the process and report. In addition EBI conducted a study on global environmental markets for US EPA in 1994-1995 for a value of \$250,000 that EPA and other still cite today.

9. Subcontracts

EBI commits to full DVBE participation as indicated in form STD. 840 and bidder declaration form GSPD-05-105 attached to this proposal. If awarded this contract, EBI intends to select a subcontractor off the DAV list for support in document production, copy-editing and reproduction. In a previous assignment for ARB, EBI used such a contractor for a similar purpose but attempts to contact the gentleman of our acquaintance who manages and owns the small firm were unsuccessful during September and October. However, EBI has identified two other DVBE contractors in good standing and has listed them on bidder declaration form GSPD-05-105 but has yet to receive firm commitments from them as of the date of this submittal.

10. Appendix: Related Research by EBI and Selected Climate Change Sources

List of Relevant Publications

The following is a list of publications and data published by EBI.

Periodicals

Environmental Business Journal: Clean Energy Issues in 2006, 2004 and previous years

Reports

Report 2020 The U.S. Environmental Industry

Report 721 Environmental Consulting & Engineering: Markets, Competition and Client Perspectives

Report 1015 Air Pollution Control: Overview of Markets and Competition

Report 116 Environmental Testing & Analytical Services

Environmental Industry of the United States: Overview by State and Metropolitan Statistical Area
(published by U.S. Department of Commerce, data provided by EBI)

Market Data

U.S. Environmental Industry

Air Pollution Control Equipment Manufacturers

Environmental Consulting & Engineering

Environmental Testing & Analytical Services

Other Sources:

EBI has already accessed a variety of information relating to the Climate Change Industry, in particular on clean energy or renewable energy, but also on broad energy use and supply issues.

We have reviewed the following websites, which have information on various Climate Change business segments

<http://www.arb.ca.gov/cc/cc.htm>
<http://www.climateandbusiness.com/2006/program.html>
<http://www.businessandclimate.org/>
<http://www.pewclimate.org/>
<http://www.climatebiz.com/>
Energy Central www.energycentral.com
Energy Asia www.energyasia.com/
Commodities Now www.commodities-now.com
Brazilian Energy Portal www.guiaenergia.com.br
Energy Central www.energycentral.com
Financial Engineering News www.fenews.com

Futures & Options World www.fow.com
Hart's Energy Markets www.energy-markets.com
Power Finance & Risk www.iipower.com
Reuters www.reuters.com
Singapore Oil Report www.energyasia.com
The Professional Risk Managers' International Association www.prmia.org
Global Association of Risk Professionals www.garp.com
Innovest www.innovestgroup.com
The Energy Institute <http://www.energyinst.org.uk/>
International Association for Energy Economics www.iaee.org
Mitsubishi Research Institute www.mri.co.jp
United Association for Energy Economics www.usaee.org
Asia Society www.asiasociety.org
Edison Electric Institute www.eei.org

The following list is some of the sources we have collected and compiled into existing spreadsheets and presentations on climate change topics.

Energy Information Administration/ Renewable Energy Annual Report; Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Source: Energy Information Administration, Form EIA-902 "Annual Geothermal Heat Pump Manufacturers Survey."

Sources: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report," and Form EIA-860B, "Annual Electric Generator Report"

Global Wind Energy Council (GWEC)

European Wind Energy Association's (EWEA)

American Wind Energy Association (AWEA)

Canadian Wind Energy Association (CanWEA):

Chinese Renewable Energy Industry Association (CREIA).

AusWind

Nuclear Energy Institute

NEC

World Energy Scenarios, IIASA-WEC

Environmental Business International, Inc.

International Partnership for the Hydrogen Economy

California Energy Commission

DOE's EIA annual energy summaries derived from the following:

Sources: Analysis conducted by Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels and specific sources described as follows. Residential: Energy Information Administration, Form EIA-457A/G, "Residential Energy Consumption Survey;" Oregon Institute of Technology, Geo-Heat Center; and Energy Information Administration, Form EIA-63-A, "Annual Solar Thermal Collector Manufacturers Survey" and Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey." Commercial: Energy Information Administration,

Form EIA-860B, "Annual Electric Generator Report - Nonutility," Form EIA-906, "Power Plant Report," Form EIA-920, "Combined Heat and Power Plant Report;" and Oregon Institute of Technology, Geo-Heat Center. Industrial: Energy Information Administration, Form EIA-846 (A, B, C) "Manufacturing Energy Consumption Survey," Form EIA-860B, "Annual Electric Generator Report - Nonutility," Form EIA-906, "Power Plant Report and Form EIA-920, "Combined Heat and Power Plant Report," Oregon Institute of Technology, Geo-Heat Center; and Government Advisory Associates, Resource Recovery Yearbook and Methane Recovery Yearbook. Transportation: Energy Information Administration, Form EIA-819M, "Monthly Oxygenate Telephone Report," and Form EIA-814, "Monthly Imports Report." Electric Power: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report," Form EIA-860B, "Annual Electric Generator Report- Nonutility," Form EIA-906, "Power Plant Report" and Form EIA-920, "Combined Heat and Power Plant Report."

EXHIBIT B
Standard Agreement

BUDGET DETAIL AND PAYMENT PROVISIONS

1. Invoicing and Payment

- A. For services satisfactorily rendered, and upon receipt and approval of the invoices, the State agrees to compensate the Contractor for actual expenditures incurred in accordance with the rates specified in Exhibit B, Attachment 1.
- B. Invoices shall include the Agreement Number and shall be submitted in triplicate not more frequently than quarterly in arrears to:

Air Resources Board
Research Division
P.O. Box 2815
Sacramento, CA 95812-1436
Attn: Emma Plasencia

- C. Contractor, upon written approval by the State's Project Representative, may rebudget funds for a cumulative total of ten (10) percent or \$25,000 whichever is less, between the major budget categories listed in Exhibit B, Attachment 1.
- D. Upon mutual agreement, State will give consideration to rebudgeting requests, however; no rebudgeting in excess of ten (10) percent and no rebudgeting of funds into the travel category may be performed without Research Division Chief approval. The total agreement cost will remain unchanged.

2. Budget Contingency Clause

- A. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, the State shall have no liability to pay any funds whatsoever to Contractor or to furnish any other considerations under this Agreement and Contractor shall not be obligated to perform any provisions of this Agreement.
- B. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the State shall have the option to either cancel this Agreement with no liability occurring to the State, or offer an agreement amendment to Contractor to reflect the reduced amount.

3. Prompt Payment Clause

Payment will be made in accordance with, and within the time specified in, Government Code Chapter 4.5, commencing with Section 927.



ENVIRONMENTAL BUSINESS INTERNATIONAL, INC.

Research, consulting and publishing for the environmental industry

Budget Submittal Proposal

ORIGINAL COPY

**The Climate Change Industry in California: An Economic
Analysis Assessing the Current Market and Prospects for
Growth in the Global Economy**

Principal Investigator/Project Manager: Grant Ferrier
Business Officer: Grant Ferrier
Contract Officer: Jeff Turner
Research Manager: Katja Rauhala
Research Manager: Fiona O'Donnell-Lawson

Official Authorized to Bind this Proposal:

Grant Ferrier, President, Environmental Business International, Inc.

Signature _____

Prepared for:

State of California
Air Resource Board
Research Division
2020 L Street
Sacramento, CA 95814

Prepared by:

Environmental Business International, Inc.
4452 Park Boulevard, Suite 306, San Diego, CA 92116
Phone: (619) 295-7685 • Fax: (619) 295-5743 • www.ebiusa.com
October 10, 2007

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1. Cost Breakdown By Task

	Literature Review	Basic Research on Climate Change Sectors	Profiles and Interviews on Climate Change Sectors and Companies	Possible Impacts on Global Markets and the California Economy	Final Report & Deliverables	Total
Labor	\$16,880	\$20,640	\$30,460	\$24,850	\$30,210	\$123,040
Fringe Benefits	\$1,688	\$2,064	\$3,046	\$2,485	\$3,021	\$12,304
Subcontractors	\$300	\$300	\$500	\$600	\$1,800	\$3,500
Equipment	\$0	\$0	\$0	\$0	\$0	\$0
Travel	\$600	\$600	\$600	\$600	\$600	\$3,000
EDP	\$0	\$0	\$0	\$0	\$0	\$0
Copy/Print	\$0	\$0	\$0	\$0	\$0	\$0
Mail/Phone/Fax	\$150	\$150	\$300	\$200	\$200	\$1,000
Materials/Supplies	\$500	\$500	\$700	\$700	\$600	\$3,000
Analyses	\$0	\$0	\$0	\$0	\$0	\$0
Miscellaneous	\$0	\$0	\$0	\$0	\$0	\$0
Labor Overhead	\$4,642	\$5,676	\$8,377	\$6,834	\$8,308	\$33,836
Fixed Fee	\$1,040	\$1,257	\$1,847	\$1,523	\$1,879	\$7,547
G&A Expense	\$1,238	\$1,497	\$2,199	\$1,813	\$2,237	\$8,984
Total	\$27,038	\$32,684	\$48,029	\$39,605	\$48,855	\$196,211

2. Budget Summary

Direct Costs:

1	Labor & Employee Fringe Benefits	\$ 135,344.00
2	Subcontractor(s)/Consultant(s)	\$ 3,500.00
3	Equipment	\$0.00
4	Travel & Subsistence	\$ 3,000.00
5	Electronic Data Processing	\$0.00
6	Photocopying & Printing	\$0.00
7	Mail, Telephone, and FAX	\$ 1,000.00
8	Materials & Supplies	\$ 3,000.0
9	Analyses	\$0.00
10	Miscellaneous	\$0.00
Total Direct Costs		\$ 145,844.00

Indirect Costs:

11	Overhead	\$33,836.00
12	General & Administrative Expenses	\$ 8,984.00
13	Other Indirect Costs	
14	Fee or Profit	\$ 7,547.00
Total Indirect Costs		\$50,367.00

Total Direct & Indirect Costs:		\$ 196,211.00
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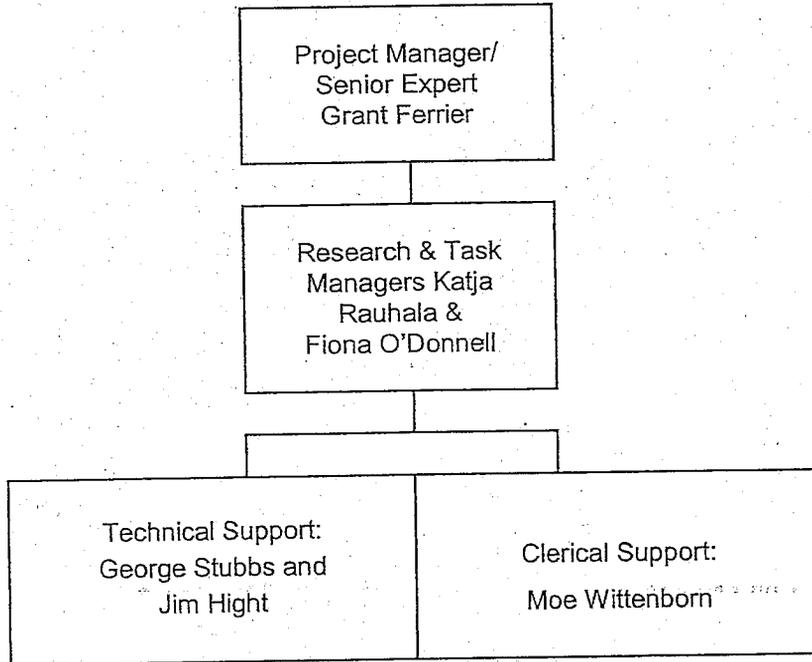
3. Direct Costs

3.1. Labor – Direct Costs

	Rates Base (Hourly Rate)	Hours Base	Cost Base
Senior Expert: Grant Ferrier	\$80.00	500	\$40,000
Research Manager: Katja Rauhala	\$45.00	1,200	\$54,000
Technical Support: George Stubbs, Jim Hight, Fiona O'Donnell	\$28.00	900	\$25,200
Clerical: Moe Wittenborn	\$16.00	240	\$3,840
TOTAL DIRECT LABOR		2,840	\$123,040

3.1.1. Project Management Plan

The study will be performed by senior EBI staff and highly experienced research and support staff. The following chart shows the EBI's staff organization for the study.



Grant Ferrier, president of EBI, will be the designated Project Manager with primary responsibility for content and quality of the study. EBI Research Managers Katja Rauhala and Fiona O'Donnell-Lawson will have primary day-to-day management of the research and data collection for the study. They will be directly overseeing other personnel's tasks, coordinating weekly meetings, and reporting the progress to Mr. Ferrier. Other contributors to the project will

be George Stubbs, Jim Hight and Moe Wittenborn. Following are cost justifications for key EBI staff involved in the project

Cost Justification: Grant Ferrier: Mr. Ferrier is responsible for industry definition structuring, industry data models, project management and project communication. His rate is very competitive for the unique experience and skills he brings from more than 20 years of industry research, economic models and publishing in the environmental industry.

Cost Justification: Katja Rauhala: Ms. Rauhala is responsible for company research, company surveys, secondary research of literature and the Internet, government document research as well as cataloging and coordinating all research materials into databases for internal and external use. She is also responsible for supporting the creation of industry size and industry forecast data models by EBI senior staff and collecting and compiling relevant material. Her rate is very competitive for the experience and skills she brings as an MBA and experienced and degreed economist.

Cost Justification: George Stubbs: Mr. Stubbs is an experienced journalist and researcher who will conduct interviews with companies in the data collection portion of this study. He will also contribute written profiles and populate the company profile database. His rate is very competitive for the experience and skills he brings as a researcher and writer with 20 years of experience.

Cost Justification: Jim Hight: Mr. Hight is an experienced journalist and researcher who will conduct interviews with companies in the data collection portion of this study and contribute to the writing of the final report. He will also contribute written profiles and populate the company profile database. His rate is very competitive for the experience and skills he brings as a researcher and writer with more than 20 years of experience in environmental issues.

Cost Justification: Fiona O'Donnell: Ms. O'Donnell is responsible for data collection, company research, company surveys, as well as supporting the cataloging and coordinating all research materials into databases for internal and external use managed by Katja. Fiona will also assist with document production. Her rate is very competitive for the experience and skills she brings in environmental industry research.

Cost Justification: Moe Wittenborn: Ms. Wittenborn will support, document production, data entry, database management, and other tasks as required. Her rate is very competitive for a competent and reliable clerical staff member.

3.1.2. Work Plan:

Anticipated Personnel Work Plan

	Description	Total Hours
Task 1	Literature Review	425
Task 2	Basic Research on Climate Change Sectors	515
Task 3	Profiles and Interviews on Climate Change Sectors and Companies	700
Task 4	Possible Impacts on Global Markets and the California Economy	540
Task 5	Final Report & Deliverables	660
Total		2,840

3.2. Fringe Benefits

	Rates Base	Hours Base	Cost Base
Total Direct Labor		2,840	\$123,040
Fringe Benefits	10%		\$12,304

Cost Justification: Fringe Benefits: EBI provides both medical and dental coverage, as well as a retirement plan for its employees and covers a minimum of three weeks vacation a year.

3.3. Subcontractors & Consultants

	Rates Base	Hours Base	Cost Base
Subcontractors & Consultants	3%		\$3,500

Cost Justification: Subcontractor: EBI plans to use a DAV contractor for document production assistance for and reproduction/copying of draft versions of the final report and presentation materials. Note: In previous projects, this subcontractor fee with the DAV contact has rendered no need for additional photocopying costs, hence it being \$0 in this proposal.

3.4. Travel & Subsistence

Description	Cost
Air Transportation, Ground Transportation, Other: Hotel, per diem, etc.	
Total	\$3,000

Cost Justification: Travel: EBI plans to make at least 2 and possibly as many as 5-6 trips to Sacramento to meet with ARB staff during the duration of this project. In addition researchers will meet directly and in person with companies for interviews, likely a batch or two in the Bay Area and a batch of two in LA and Orange County and the Delta.

3.5. Mail/Phone/Fax

Item	Cost
Phone / Fax use, Mailing	
Total	\$1,000

Cost Justification: Mail/Phone Fax: EBI will conduct a significant volume of interviews on the telephone during the 18 month research process. In addition a mailed survey will be used to augment the majority focus on internet surveys and often fax follow-up will be required for on-paper surveys.

3.6. Materials & Supplies

Item	Cost
Paper, Printing Toner, Other office supplies	
Total	\$3,000

Cost Justification: Materials & Supplies: EBI will likely consume a fair amount of office supplies in conducting this research project including but not limited to paper, toner for printers,

writing materials, presentation materials, mailing supplies for surveys, storage and organizational supplies, etc.

3.7. Total Direct Costs

Description	Cost
Labor & Employee Fringe Benefits	\$ 135,344.00
Subcontractor(s)/Consultant(s)	\$ 3,500.00
Equipment	\$0.00
Travel & Subsistence	\$ 3,000.00
Electronic Data Processing	\$0.00
Photocopying & Printing	\$0.00
Mail, Telephone, and FAX	\$ 1,000.00
Materials & Supplies	\$ 3,000.00
Analyses	\$0.00
Miscellaneous	\$0.00
Total Direct Costs	\$ 145,844.00

4. Indirect Costs

4.1. Overhead

Base	Rate	Cost
\$123,040 (Total Direct Labor)	25%	\$30,760.00
\$12,304 (Fringe Benefits)	25%	\$3,076.00
Total		\$33,836.00

Cost Justification: Overhead: EBI overhead rates are within guidelines of federal rates but we have not conducted a US government direct contract recently to have a letter from an agency.

4.2. General & Administrative Expenses

Base	Rate	Cost
\$145,844 (Total Direct Costs)	5%	\$7,292.00
\$33,836 (Labor Overhead)	5%	\$1,692.00
Total		\$8,984.00

Cost Justification: G&A: EBI overhead rates are within guidelines of federal rates but we have not conducted a US government direct contract recently to have a letter from an agency.

4.3. Fixed Fee

Base	Rate	Cost
\$145,844 (Total Direct Costs)	4%	\$5,833.76
\$33,836 (Labor Overhead)	4%	\$359
\$8,984 (General & Admin Expenses)	4%	\$1,353.44
Total		\$ 7,547.00

4.4. Total Indirect Costs

Item	Cost
Overhead	\$33,836.00
General & Administrative Expenses	\$ 8,984.00
Other Indirect Costs	
Fee or Profit	\$ 7,547.00
Total Indirect Costs	\$50,367.00

4.5. Total Direct & Indirect Costs

Item	Cost
Total Direct Costs	\$ 145,844.00
Total Indirect Costs	\$50,367.00
Total Direct & Indirect Costs:	\$ 196,211.00

EXHIBIT D Standard Agreement

SPECIAL TERMS AND CONDITIONS

1. Excise Tax

The State of California is exempt from federal excise taxes, and no payment will be made for any taxes levied on employees' wages. The State will pay for any applicable State of California or local sales or use taxes on the services rendered or equipment or parts supplied pursuant to this Agreement. California may pay any applicable sales and use tax imposed by another state.

2. Settlement of Disputes

- A. In the event of a dispute, Contractor shall file a "Notice of Dispute" with Air Resources Board within ten (10) days of discovery of the problem. Within ten (10) days, the Air Resources Board shall meet with the Contractor and Project Representative for purposes of resolving the dispute.
- B. Any dispute concerning a question of fact arising under the terms of this Agreement which is not disposed of within a reasonable period of time by Contractor and State employees normally responsible for the administration of this Agreement shall be brought to the attention of the Executive Officer or designated representative of each organization for resolution. The decision of the State Executive Officer or designated representative shall be final.
- C. In the event of a dispute, the language contained within this Agreement shall prevail over any other language including that of the proposal.
- D. The existence of a dispute not fully resolved shall not delay Contractor to continue with the responsibilities under this Agreement which is not affected by the dispute.

3. Potential Subcontractors

Nothing contained in this Agreement or otherwise, shall create any contractual relation between the State and any subcontractors, and no subcontract shall relieve the Contractor of his responsibilities and obligations hereunder. The Contractor agrees to be as fully responsible to the State for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by the Contractor. The Contractor's obligation to pay its subcontractors is an independent obligation from the State's obligation to make payments to the Contractor. As a result, the State shall have no obligation to pay or to enforce the payment of any moneys to any subcontractor.

Contractor shall not subcontract any services under this Agreement without prior approval of the State.

4. Stop Work Order

State reserves the right to issue an order to stop work in the event that a dispute should arise, or in the event that State gives Contractor a notice that the Agreement will be terminated. The stop-work order will be in effect until the dispute has been resolved or the Agreement has been terminated.

EXHIBIT D

Standard Agreement

5. Termination

- A. In addition to the rights under Exhibit C of the Standard Agreement, State reserves the right to terminate this Agreement at its sole discretion at any time upon thirty (30) days prior written notice to Contractor.
- B. In the case of early termination, Contractor shall submit an invoice in triplicate and a report in triplicate covering services to termination date, following the invoice and progress report requirements of this Agreement. A copy and description of any data collected up to termination date shall also be provided to State.
- C. Upon receipt of the invoice, progress report, and data, a final payment will be made to Contractor. This payment shall be for all State-approved, actually-incurred costs that in the opinion of State are justified, and shall include labor, and materials purchased or utilized (including all non-cancellable commitments) to termination date, and pro rata indirect costs as specified in the proposal budget.

6. Amendments

ARB reserves the right to amend this agreement for additional time and/or additional funding.

EXHIBIT E Standard Agreement

ADDITIONAL PROVISIONS

1. DVBE Audit

Contractor agrees that the State or its delegate will have the right to review, obtain, and copy all records pertaining to Contractor's compliance with the Disabled Veteran Business Enterprise (DVBE) requirements as contained in Public Contract Code sections 10115 et. seq. Contractor agrees to provide State or its delegate with any relevant information requested and shall permit State or its delegate access to its premises, upon reasonable notice, during normal business hours for the purposes of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with the DVBE requirements. Contractor further agrees to maintain such records for a period of three years after final payment under this Agreement.

2. Federal Funding

- A. It is mutually understood between the parties that this Agreement may have been written before ascertaining the availability of congressional appropriation of funds, for the mutual benefit of both parties in order to avoid program and fiscal delays which would occur if the Agreement were executed after that determination was made.
- B. This Agreement is valid and enforceable only if sufficient funds are made available to State by the United States Government for the fiscal year(s) covered by this Agreement for the purposes of this program. In addition, this Agreement is subject to any additional restrictions, limitations, or conditions enacted by the Congress or any statute enacted by the congress which may affect the provisions, terms, or funding of this Agreement in any manner.
- C. It is mutually agreed that if Congress does not appropriate sufficient funds for this Agreement, this Agreement shall be amended to reflect any reduction of funds.
- D. The State has the option to cancel this Agreement under the 30-day cancellation clause or to amend the agreement to reflect any reduction of funds.
- E. The Contractor shall comply with the Single Audit Act and the reporting requirements set forth in OMB Circular A-133.
- F. Funds provided under this Agreement shall not be used for payment of salaries to individual consultants retained by the Contractor or any subcontractors in excess of the rate for Level 4; Federal Executive Schedule. The limit expressed does not include transportation and subsistence costs for necessary travel for work required under Agreement.
- G. The Contractor warrants by execution of this Agreement, that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the

EXHIBIT E Standard Agreement

State shall, in addition to other remedies provided by law, have the right to annul this Agreement without liability, paying only for the value of the work actually performed, or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.

3. Travel & Per Diem

- A. Any reimbursement for necessary travel and per diem shall be at rates not to exceed those amounts paid to State of California employees as set forth by Department of Personal Administration rules and regulations, or verification supplied that indicates such rates are not available to Contractor.
- B. No travel outside the State of California shall be reimbursed unless prior written authorization is obtained from State.

4. Evaluation of Contractor

Performance of the Contractor under this Agreement will be evaluated. The evaluation shall be prepared on Contract/Contractor Evaluation Sheet (STD 4), and maintained in the Agreement file. For consultant agreements over \$5,000, a copy of any negative evaluations will be sent to the Department of General Services, Office of Legal Services.

5. Progress Payments

In computing the amount of any progress payment, the State shall determine what Contractor has earned during the period for which payment is being made on the basis of the Agreement terms, but shall retain out of such earnings, an amount equal to 10 percent thereof, pending satisfactory completion of the entire agreement. However, if the Agreement consists of the performance of separate and distinct tasks, then any funds so withheld with regard to a particular task may be paid upon completion of that task.

6. Computer Software

Contractor certifies that it has appropriate systems and controls in place to ensure that State funds will not be used in the performance of this contract for the acquisition, operation or maintenance of computer software in violation of copyright laws.

7. Meetings

- A. Initial meeting. Before work on the contract begins, Contractor will meet with the State's Project Representative and other staff to discuss the overall plan, details of performing the tasks, the project schedule, items related to personnel or changes in personnel, and any issues that may need to be resolved before work can begin.

EXHIBIT E Standard Agreement

- B. Progress review meetings. Contractor and appropriate members of his or her staff will meet with the State's Project Representative at monthly intervals to discuss the progress of the project. This meeting may be conducted by phone, if appropriate.
- C. Technical Seminar The Contractor will present the results of the project to ARB staff and a possible webcast at a seminar at ARB facilities in Sacramento or El Monte.

8. Reports and Data Compilations

- A. With respect to each invoice period, Contractor shall forward to the Project Representative an electronic copy of the progress report and mail one copy of the progress report with each invoice. (Do not use Express Mail.) When e-mailing the progress report, the "subject line" should state the contract number and the billing period. Each progress report will begin with the following disclaimer:

The statements and conclusions in this report are those of the Contractor and not necessarily those of the California Air Resources Board. The mention of commercial products, their source, or their use in connection with material reported herein is not to be construed as actual or implied endorsement of such products.

- B. Each progress report will also include:
 - 1. A brief narrative account of project tasks completed or partially completed since the last progress report.
 - 2. A brief discussion of problems encountered during the reporting period and how they were or are proposed to be resolved.
 - 3. A brief discussion of work planned, by project task, before the next progress report.
 - 4. A graph showing allocation of the budget and amount used to date for each task.
 - 5. A graph showing percent of completion for each task.
- C. If the project is behind schedule, the progress report must contain an explanation of reasons and how Contractor plans to resume the schedule.
- D. Six months prior to contract termination date, Contractor will deliver to State twenty (20) bound copies of a draft final report for review by ARB staff. The reports may be stapled or spiral bound, depending on size. The draft final report will conform to Exhibit F.
- E. Within forty-five (45) days of receipt of State's comments on the draft final report, Contractor will deliver to the State's Project Representative two (2) copies of the final report incorporating all reasonable alterations and additions requested by State and the Research Screening Committee. Upon approval of the amended final report by the State's Project Representative, Contractor will within two (2) weeks, deliver to State two (2) camera-ready **UNBOUND** originals and a final report incorporating all final alterations and additions. The final report will conform to the Contract Final Report Format, Exhibit F.

EXHIBIT E Standard Agreement

- F. Together with the final report, Contractor will deliver a copy of the report on diskette, using Microsoft Word 6.0 (or newer) and a set of all data compilations as specified by the ARB Project Representative.
- G. Contractor's obligation under this Agreement shall be deemed discharged only upon submittal to and acceptance by the State of the final report, report diskette, and all required data compilations.
- H. No reports, professional papers, information, inventions, improvements, discoveries, or data obtained, prepared, assembled, or developed by Contractor pursuant to this Agreement shall be released or made available, except to ARB, without prior written approval of State while the Agreement is in force. State's consent shall not be unreasonably withheld.

9. Priority Hiring Considerations

Contractor shall give priority consideration in filling vacancies in positions funded by this Agreement to qualified recipients of aid under Welfare and Institutions Code Section 11200.

10. Forced, Convict, and Indentured Labor

No foreign-made equipment, materials, or supplies furnished to State pursuant to this Agreement may be produced in whole or in part by forced labor, convict labor, or indentured labor. By submitting a proposal to State, Contractor agrees to comply with this provision of the Agreement.

11. Sole Proprietor (If agreement is with a sole proprietor)

If signing this Agreement as a sole proprietor, Contractor certifies they are not an alien that is ineligible for state and local benefits, as defined in Subtitle B of the Personal Responsibility and Work Opportunity Act (8 USC 1601, et. seq.)

12. Insurance (Hazardous activities)

- A. Contractor shall furnish to State a certificate of insurance stating that liability insurance of not less than \$1,000,000 per occurrence for bodily injury and property damage liability combined is presently in effect for Contractor.

Contractor agrees that the bodily injury liability insurance herein provided for shall be in effect at all times during the term of this Agreement. In the event said insurance coverage expires at any time or times during the term of this Agreement, Contractor agrees to provide, at least thirty (30) days before said expiration date, a new certificate of insurance evidencing insurance coverage as provided for herein for not less than the remainder of the term of the Agreement or for a period of not less than one year. New certificates of insurance are subject to the approval of the Department of General Services, and Contractor agrees that no work or services shall be performed prior to such approval. The State may, in addition to any other remedies it may have, terminate this Agreement on the occurrence of such event.

EXHIBIT E Standard Agreement

The Certificate of Insurance must include the following provisions:

1. The insurer will not cancel the insured's coverage without thirty (30) days prior written notice to State; and
2. The State of California, its officers, agents, employees and servants are included as additional insured, but only insofar as the operations under this Agreement are concerned.

13. Copyrightable Materials

- A. ARB reserves the right to any copyrightable materials developed under this Agreement. Upon acceptance of the copyrightable materials developed under this Agreement, and payment of the sums then due under the terms of the Agreement, ARB shall have the sole and exclusive right, title, and interest (including trade secret and copyright interests) in the copyrightable materials. Contractor and his or her subcontractors hereby assign(s) all rights, title, and interest (including trade secret and copyright interest) in any copyrightable materials developed under this Agreement to ARB.
- B. ARB, at its discretion, may grant a nonexclusive and paid-up license to Contractor and his or her subcontractors to use said copyrightable materials. Contractor and his or her subcontractors agrees to cooperate with and assist ARB to apply for and to execute any applications and/or assignments reasonably necessary to obtain any patent, copyright, trademark, or other statutory protection for all copyrightable materials.
- C. Contractor and his or her subcontractors shall not disclose any copyrightable materials, any of the deliverables thereof, or any portion thereof, to any other organization or person without the written consent of ARB.
- D. Contractor and his or her subcontractors shall not use the copyrightable materials, any of the deliverables thereof, or any portion thereof, in any other work performed by this Agreement subject to any license granted without the written consent of ARB.
- E. Contractor's obligations under this provision shall survive the expiration or termination of this Agreement.

14. Confidentiality

It is expressly understood and agreed that information Contractor receives from State in performing its obligations under this Agreement may be deemed confidential by State. Therefore, Contractor agrees to:

- A. Observe complete confidentiality with respect to such information, including without limitation, agreeing not to disclose or otherwise permit access to such information by any person or entity in any manner whatsoever.
- B. Ensure that Contractor's employees, agents, representatives, and independent contractors are informed of the confidential nature of such information and ensure by agreement or otherwise that they are prohibited from copying or revealing, for any purpose whatsoever, the contents of

EXHIBIT E Standard Agreement

such information or any part thereof, or from taking any action otherwise prohibited under this section.

- C. Not use such information or any part thereof in the performance of services to others or for the benefit of others in any form whatsoever whether gratuitously or for valuable consideration, except as permitted under this Agreement.
- D. Notify State promptly and in writing of the circumstances surrounding any possession, use or knowledge of such information or any part thereof by any person other than those authorized by this paragraph.

15. Patent Provisions

A. Definitions

1. "Invention" means any discovery or product of creative imagination, thought, mental synthesis, or purposeful experimentation conceived or first reduced to practice in the course of or under this Agreement. The term "invention" includes, but is not limited to, any art, method, process, device, machine, manufacture, design, or composition of matter, or any new and useful improvement or application thereof, or any variety of plant, that is or may be patentable under the patent laws of the United States of America.
2. "Agreement" means any legally enforceable agreement, covenant, compact grant, or other arrangement or subcontract setting forth terms and conditions to do or not to do something and entered into by or for the benefit of the State where a purpose of the agreement is the conduct of experimental, developmental, or research work.
3. "Subcontract" means an agreement under or subordinate to a previous or prime agreement, including this Agreement.
4. "Subcontractor" means an individual or firm that contract with Contractor to perform part or all of the prime Contractor's work under this Agreement.
5. "To bring to the point of practical application" means to manufacture in the case of a composition or product, to practice in the case of a process, or to operate in the case of a machine, device, or system and, in each case, under such conditions as to establish that the invention is being worked, operated, or utilized, and that its benefits are reasonably accessible to the public.

B. Rights Granted to the State

Contractor agrees to grant to State all right, title, and interest in and to each invention discovered, conceived, or first reduced to practical application during performance of this Agreement, subject to the reservation of a non-exclusive paid-up worldwide license to Contractor.

EXHIBIT E Standard Agreement

C. Invention Disclosures and Reports

With respect to each invention, Contractor shall furnish to ARB:

1. A written disclosure of each invention within six (6) months after conception or first actual reduction to practice, whichever occurs first under this Agreement, sufficiently complete in technical detail to convey to one skilled in the art to which the invention pertains a clear understanding to the nature, purpose, and operation, and the physical, chemical, and electrical characteristics of the invention;
2. A final report listing all inventions, including all those previously disclosed, or certifying that there are no inventions prior to final payment under this contract.
3. Information in writing, as soon as is practicable, of the date and identity of any public use, sale, or publication of any such invention made by or known to Contractor, or of any contemplated publication by Contractor;
4. Upon request, such duly executed instruments and other papers as deemed by ARB necessary to vest in State the rights granted it under this patent provision and to enable State to apply for and prosecute any patent application in any country covering such invention where State has the right under this patent provision to file such application; and upon request, an irrevocable power of attorney to inspect and make copies of any United States patent application filed by or on behalf of Contractor. This demand may also be made under subdivision 8.

D. Licenses Granted by Contractor to Others Subject to State's Rights

Contractor recognizes that State may contract for property or services with respect to which the vendor may be liable to Contractor for royalties for the use of an invention on account of such a contract. Contractor further recognizes that it is the policy of State not to pay, in connection with its agreements, charges for use of patents in which the State holds title. In recognition of this policy, Contractor agrees to participate in and make appropriate arrangements for the exclusion of such charges from such agreements or for the refund of amounts received by Contractor with respect to any such charges not so excluded.

E. Subcontracts

1. Contractor shall, unless otherwise authorized or directed by State, include a patent rights clause containing all the terms of this patent provision in any subcontract hereunder where the purpose of the subcontract is the conduct of experimental, developmental, or research work. In the event of refusal by a subcontractor to accept this patent provision, Contractor:
 - a. shall promptly submit a written report to the State setting forth the subcontractor's reasons for such refusal or the reasons Contractor is of the opinion that the inclusion of

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Standard Agreement

this clause would be unacceptable, and other pertinent information that may expedite disposition of this matter; and

- b. shall not proceed with the subcontract without the written authorization of State.
2. Contractor shall not, in any subcontract or by using such a subcontract as consideration thereof, acquire any rights to inventions for his/her own use (as distinguished from such rights as may be required solely to fulfill his/her agreement obligations to State in the performance of this Agreement).
 3. Contractor, at the earliest practicable date, shall also notify State in writing of any subcontract containing a patent rights clause, furnish to State a copy of such subcontract, and notify State when such subcontract is completed. It is understood that State is a third party beneficiary of any subcontract clause granting rights to State in inventions, and Contractor hereby assigns to State all the rights that Contractor would have to enforce the subcontractor's obligations for the benefit of State with respect to inventions. Contractor shall not be obligated to enforce the agreements of any subcontractor to State with regard to inventions.

F. Right to Disclose Inventions

State may duplicate and disclose reports and disclosures of inventions required to be furnished by Contractor pursuant to this patent provision.

G. Forfeiture of Rights in Unreported Inventions

Contractor shall forfeit to State all rights in any invention which Contractor fails to report to State, at or prior to the time Contractor (1) files or causes to be filed a United States or foreign application thereon, or (2) submits the final report required by 3., B of this patent provision, whichever is later, provided that Contractor shall not forfeit rights in an invention if (a) contending that the invention is not an invention, s/he nevertheless reports the invention and all the facts pertinent to Contractor's contention to State, the time specified in 3. A above, or (b) Contractor establishes that the failure to report was due entirely to causes beyond Contractor's control and without Contractor's fault or negligence. Contractor shall be deemed to hold any such forfeited invention and the patent applications and patent pertaining thereto, in trust for State pending written assignment of the invention. The right accruing to State under this paragraph shall be in addition to and shall not supersede any other rights State may have in relation to unreported inventions.

H. Examination of Records Relating to Inventions

State shall, until the expiration of three years after final payment under this agreement, have the right to examine any books, records, documents, and other supporting data of Contractor that State shall reasonably deem directly pertinent to the discovery or identification of inventions or to compliance by Contractor with the requirements of this patent provision.

EXHIBIT E Standard Agreement

16. Equipment Provisions

- A. Equipment is defined as movable articles of nonexpendable property that meet the following requirements:
1. Have a normal useful life (including extended life due to repairs) of at least one year;
 2. Have a unit acquisition cost of at least \$5,000 for other than land and structures (for example, identical assets costing \$3,000 each for a \$12,000 total would not meet the requirements); and
 3. Be used to conduct work under this contract, and/or
 4. Any and all EDP equipment used to conduct work under this contract.
- B. The cost of equipment includes the purchase price plus all costs to acquire, install, and prepare equipment for its intended use.
- C. The ARB reserves the right to purchase total equipment whose cost is greater than \$25,000 and any and all EDP equipment for this contract, through the State procurement process. Contractor's proposed cost of this equipment will be deducted from the total amount payable to the Contractor.
- D. In the event Contractor purchases with ARB funds, procures, uses, or otherwise takes possession of equipment owned by ARB to perform work under this contract, title to such equipment shall remain with ARB and such equipment shall become ARB's equipment upon delivery thereof into Contractor's control or possession.
- E. Contractor shall obtain written approval from ARB prior to the purchase of equipment that is not specifically identified and listed in the approval budget and which is valued at more than \$1,000. The contract funding shall be adjusted for any equipment or supplies furnished by ARB.
- F. The ARB reserves the right to full and adequate access to ARB equipment.
- G. The Contractor shall maintain and administer a program for the utilization, maintenance, repair, protection, and preservation of ARB equipment, whether acquired from the ARB or purchased with ARB funds from a third party, so as to assure its full availability and usefulness for performance of this contract or as long as this equipment remains in the control or possession of the Contractor. The Contractor will install upon each item of equipment a tag identifying the equipment as belonging to the ARB and will maintain location records of all equipment. The Contractor shall take steps to comply with all appropriate directions or instructions that the ARB may prescribe for the protection of ARB equipment.

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- H. The Contractor shall provide to ARB, with the final invoice, a final equipment inventory. The final invoice shall contain an itemization of equipment purchased with ARB funds or procured through the State procurement process, including the type of equipment, manufacturer, serial number, and cost. All ARB equipment shall be returned to the ARB in full operating condition upon termination of this contract, unless ARB approves a different disposition in writing. Disposition of the equipment shall be in accordance with the instructions from ARB, to be issued after receipt of the final inventory.

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FINAL REPORT FORMAT

The contract Final Report (Report) is as important to the contract as the research itself. The Report is a record of the project and its results, and is used in several ways. Therefore, the Report must be well organized and contain certain specific information. This Appendix outlines the requirements that must be met when producing the Report.

Note: In partial fulfillment of the Final Report requirements, the Contractor shall submit a copy of the Report on a CD in PDF format and in a word-processing format, preferably in Word - Version 6.0 or later. This is in addition to the submission of any paper copies required. The diskette shall be clearly labeled with the contract title, ARB contract number, the words "Final Report", and the date the report was submitted.

Legibility. Each page of the approved Final Report must be legible and camera-ready.

Binding. The draft Report, including its appendices, must be either spiral bound or stapled, depending on size. The revised Report and its appendices should be spiral bound, except for two unbound, camera-ready originals.

Cover. Do not supply a cover for the Report. The ARB will provide its standard cover.

One-sided vs. two-sided. To conserve paper, both the draft Report and the revised Report, except for the unbound camera-ready copies, should be printed on both sides of the page. **The unbound camera-ready copies must be printed on only one side of the page.**

Title. The title of the Report should exactly duplicate the title of the contract unless a change is approved in writing by the Project Representative.

Spacing. In order to conserve paper, copying costs, and postage, please use single or one-line (1) spacing.

Page size. All pages should be of standard size (8 1/2" x 11") to allow for photo-reproduction.

Large tables or figures. Foldout or photo-reduced tables or figures are not acceptable because they cannot be readily reproduced. Large tables and figures should be presented on consecutive 8 1/2" x 11" pages, each page containing one portion of the larger chart.

Color. Color presentations are not acceptable; printing shall be black on white only.

Corporate identification. Do not include corporate identification on any page of the Final Report, except the title page.

Unit notation. Measurements in the Reports should be expressed in metric units. However, for the convenience of engineers and other scientists accustomed to using the British system, values may be given in British units as well in parentheses after the value in metric units. The expression of measurements in both systems is especially encouraged for engineering reports.

Section order. The Report should contain the following sections, in the order listed below:

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Title page
Disclaimer
Acknowledgments
Table of Contents
List of Figures
List of Tables
Abstract
Executive Summary
Body of Report
References
List of inventions reported and copyrighted materials produced
Glossary of Terms, Abbreviations, and Symbols
Appendices

Page numbering. Beginning with the body of the Report, pages shall be numbered consecutively beginning with "1", including all appendices and attachments. Pages preceding the body of the Report shall be numbered consecutively, in ascending order, with small Roman numerals.

Title page. The title page should include, at a minimum, the contract number, contract title, name of the principal investigator, contractor organization, date, and this statement: "Prepared for the California Air Resources Board and the California Environmental Protection Agency"

Disclaimer. A page dedicated to this statement must follow the Title Page:

The statements and conclusions in this Report are those of the contractor and not necessarily those of the California Air Resources Board. The mention of commercial products, their source, or their use in connection with material reported herein is not to be construed as actual or implied endorsement of such products.

Acknowledgments. Only this section should contain acknowledgments of key personnel and organizations that were associated with the project. The last paragraph of the acknowledgments must read as follows:

This Report was submitted in fulfillment of [ARB contract number and project title] by [contractor organization] under the [partial] sponsorship of the California Air Resources Board. Work was completed as of [date].

Table of Contents. This should list all the sections, chapters, and appendices, together with their page numbers. Check for completeness and correct reference to pages in the Report.

List of Figures. This list is optional if there are fewer than five illustrations.

List of Tables. This list is optional if there are fewer than five tables.

Abstract. The abstract should tell the reader, in non-technical terms, the purpose and scope of the work undertaken, describe the work performed, and present the results obtained and conclusions. The purpose of the abstract is to provide the reader with useful information and a means of determining whether the complete document should be obtained for study. The length of the abstract should be no

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more than about 200 words. Only those concepts that are addressed in the executive summary should be included in the abstract.

Example of an abstract:

A recently developed ground-based instrument, employing light detecting and ranging (lidar) technology, was evaluated and found to accurately measure ozone concentrations at altitudes of up to 3,000 meters. The novel approach used in this study provides true vertical distributions of ozone concentrations aloft and better temporal coverage of these distributions than other, more common methods, such as those using aircraft and ozone sonde (balloon) techniques. The ozone and aerosol measurements from this study, in conjunction with temperature and wind measurements, will provide a better characterization of atmospheric conditions aloft and the processes involved in the formation of unhealthy ozone concentrations than can be achieved with traditional ground-based monitors.

Executive Summary. The function of the executive summary is to inform the reader about the important aspects of the work that was done, permitting the reader to understand the research without reading the entire Report. It should state the objectives of the research and briefly describe the experimental methodology [ies] used, results, conclusions, and recommendations for further study. All of the concepts brought out in the abstract should be expanded upon in the Executive Summary. Conversely, the Executive Summary should not contain concepts that are not expanded upon in the body of the Report.

The Executive Summary will be used in several applications as written; therefore, please observe the style considerations discussed below.

Limit the Executive Summary to two pages, single spaced.

Use narrative form. Use a style and vocabulary level comparable to that in Scientific American or the New York Times.

Do not list contract tasks in lieu of discussing the methodology.

Discuss the results rather than listing them.

Avoid jargon.

Define technical terms.

Use passive voice if active voice is awkward.

Avoid the temptation to lump separate topics together in one sentence to cut down on length.

The Executive Summary should contain four sections: Background, Methods, Results, and Conclusions, described below.

THE BACKGROUND SECTION. For the Background, provide a one-paragraph discussion of the reasons the research was needed. Relate the research to the Board's regulatory functions, such as establishing ambient air quality standards for the protection of human health, crops, and ecosystems; the improvement and updating of emissions inventories; and the development of air pollution control strategies.

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THE METHODS SECTION. At the beginning of the Methods section, state what was done in general, in one or two sentences.

The methodology should be described in general, non-technical terms, unless the purpose of the research was to develop a new methodology or demonstrate a new apparatus or technique. Even in those cases, technical aspects of the methodology should be kept to the minimum necessary for understanding the project. Use terminology with which the reader is likely to be familiar. If it is necessary to use technical terms, define them. Details, such as names of manufacturers and statistical analysis techniques, should be omitted.

Specify when and where the study was performed, if it is important in interpreting the results.

The findings should not be mentioned in the Methods section.

THE RESULTS SECTION. The Results section should be a single paragraph in which the main findings are cited and their significance briefly discussed. The results should be presented as a narrative, not a list. This section must include a discussion of the implications of the work for the Board's relevant regulatory programs.

THE CONCLUSIONS SECTION. The Conclusions section should be a single short paragraph in which the results are related to the background, objectives, and methods. Again, this should be presented as a narrative rather than a list. Include a short discussion of recommendations for further study, adhering to the guidelines for the Recommendations section in the body of the Report.

Body of Report. The body of the Report should contain the details of the research, divided into the following sections:

INTRODUCTION. Clearly identify the scope and purpose of the project. Provide a general background of the project. Explicitly state the assumptions of the study.

Clearly describe the hypothesis or problem the research was designed to address. Discuss previous related work and provide a brief review of the relevant literature on the topic.

MATERIALS AND METHODS. Describe the various phases of the project, the theoretical approach to the solution of the problem being addressed, and limitations to the work. Describe the design and construction phases of the project, materials, equipment, instrumentation, and methodology. Describe quality assurance and quality control procedures used. Describe the experimental or evaluation phase of the project.

RESULTS. Present the results in an orderly and coherent sequence. Describe statistical procedures used and their assumptions. Discuss information presented in tables, figures and graphs. The titles and heading of tables, graphs, and figures, should be understandable without reference to the text. Include all necessary explanatory footnotes. Clearly indicate the measurement units used.

DISCUSSION. Interpret the data in the context of the original hypothesis or problem. Does the data support the hypothesis or provide solutions to the research problem? If appropriate, discuss how the results compare to data from similar or related studies. What are the implications of the findings? Identify innovations or development of new techniques or processes. If appropriate, discuss cost projections and economic analyses.

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SUMMARY AND CONCLUSIONS. This is the most important part of the Report because it is the section that will probably be read most frequently. This section should begin with a clear, concise statement of what, why, and how the project was done. Major results and conclusions of the study should then be presented, using clear, concise statements. Make sure the conclusions reached are fully supported by the results of the study. Do not overstate or over interpret the results. It may be useful to itemize Secondary results and conclusions. A simple table or graph may be used to illustrate.

RECOMMENDATIONS. Use clear, concise statements to recommend (if appropriate) future research that is a reasonable progression of the study and can be supported by the results and discussion.

References. Use a consistent style to fully cite work referenced throughout the Report and references to closely related work, background material, and publications that offer additional information on aspects of the work. Please list these together in a separate section, following the body of the Report. If the Report is lengthy, you may list the references at the end of each chapter.

List of inventions reported and publications produced. If any inventions have been reported, or publications or pending publications have been produced as a result of the project, the titles, authors, journals or magazines, and identifying numbers that will assist in locating such information should be included in this section.

Glossary of terms, abbreviations, and symbols. When more than five of these items are used in the text of the Report, prepare a complete listing with explanations and definitions. It is expected that every abbreviation and symbol will be written out at its first appearance in the Report, with the abbreviation or symbol following in parentheses [i.e., carbon dioxide (CO₂)]. Symbols listed in table and figure legends need not be listed in the Glossary.

Appendices. Related or additional material that is too bulky or detailed to include within the discussion portion of the Report shall be placed in appendices. If a Report has only one appendix, it should be entitled "APPENDIX". If a Report has more than one appendix, each should be designated with a capital letter (APPENDIX A, APPENDIX B). If the appendices are too large for inclusion in the Report, they should be collated, following the binding requirements for the Report, as a separate document. The Project Representative will determine whether appendices are to be included in the Report or treated separately. Page numbers of appendices included in the Report should continue the page numbering of the Report body. Pages of separated appendices should be numbered consecutively, beginning at "1".